

**IN THE UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION**

GEORGIA FIREFIGHTERS' PENSION
FUND, Individually and on Behalf of All Others
Similarly Situated,

Plaintiffs,

v.

ANADARKO PETROLEUM
CORPORATION, R.A. WALKER, ROBERT
G. GWIN, ROBERT P. DANIELS, and
ERNEST A. LEYENDECKER, III,

Defendants.

Civil Action No. 4:20-cv-00576



EXPERT REPORT OF ALLEN FERRELL, PH.D.

December 10, 2021

TABLE OF CONTENTS

I.	Qualification	2
II.	Background.....	3
III.	Plaintiffs' Allegations and the Steinholt Report	7
IV.	Assignment and Summary of Opinions	8
V.	Scientific Foundations for Price Impact Analysis	10
VI.	Analysis of Alleged Misstatement Dates	16
VII.	Analysis of the Alleged Corrective Disclosure Date	26
VIII.	The Economic Nature of the Disclosures	36
IX.	Mr. Steinholt's Statements Regarding His Ability To Calculate Class-Wide Damages In This Case	40

I. Qualification

1. I am an economist and the Greenfield Professor of Securities Law at Harvard Law School. I received a Ph.D. in economics from the Massachusetts Institute of Technology with fields in econometrics and finance and a J.D. from Harvard Law School. My Ph.D. dissertation concerned the relationship between stock prices and financial disclosures. After law school I clerked for Judge Silberman of the United States Court of Appeals for the D.C. Circuit and Justice Kennedy of the Supreme Court of the United States.

2. I am also a faculty associate at the Kennedy School of Government at Harvard, a fellow at Columbia University's Program on the Law and Economics of Capital Markets, a research associate at the European Corporate Governance Institute, and a member of the editorial board of the *Journal of Financial Perspectives*. I formerly was a member of the Board of Economic Advisors to the Financial Industry Regulatory Authority ("FINRA"), an academic fellow at FINRA, Chairperson of Harvard's Advisory Committee on Shareholder Responsibility (which was responsible for advising the Harvard Corporation on how to vote shares held by its endowment), the ABA Task Force on Corporate Governance, American Law Institute Project on the Application of U.S. Financial Regulations to Foreign Firms and Cross-Border Transactions, and an executive member of the American Law School section on securities regulation.

3. I have testified before the U.S. Senate Subcommittee on Securities, Insurance, and Investment and presented to, among others, the Securities and Exchange Commission ("SEC"), the World Bank, the International Monetary Fund, the Structured Products Association, and the National Bureau of Economic Research. I have published approximately 30 articles in leading law and finance journals. I have also been an expert witness in a variety of securities matters. My testimony in the last four years and academic work are summarized on my curriculum vitae, which is attached hereto as **Appendix A**.

4. I have been assisted by Compass Lexecon staff in this matter. My analyses, opinions, and conclusions are based solely on the work performed by me, and those under my supervision, through the date of this report. I am being compensated for my work on this matter at an hourly rate of \$1,250, including for any testimony I may provide in this matter. I receive other compensation from Compass Lexecon based on a portion of staff billings. My compensation is not contingent upon my opinions and conclusions, or the outcome of this matter.

5. The materials I have considered are listed in **Appendix B**.

6. This report is subject to change or modification should additional relevant information become available which bears on the analysis, opinions, or conclusions contained herein. I may also seek to respond to opinions or analyses proffered by other experts. I further reserve the right to amend or supplement this report on instruction of counsel or as a result of any motion or court order that may impact the nature or scope of claims and issues in this litigation. I may also prepare illustrative exhibits based on the contents of this report if I am called upon to testify at trial.

II. Background

7. Anadarko Petroleum Corporation (“Anadarko” or the “Company”) was one of “the world’s largest independent exploration and production companies.”¹ As of May 2, 2017, Anadarko had a market capitalization (i.e., Anadarko share price multiplied by its shares outstanding) of \$31 billion.² The Company also reported revenues of \$7.9 billion in 2016 and assets of \$45 billion as of March 31, 2017.³

8. Anadarko had a large portfolio of assets. As of the end of 2016, it had U.S. onshore assets in the lower 48 states and Alaska, “where the Company operate[d] approximately 12,700 wells and own[ed] interests in approximately 3,500 nonoperated wells.”⁴ Anadarko also had exploration and production activities internationally, including in Algeria, Ghana, Mozambique, Colombia, and Côte d’Ivoire.⁵ In addition, as of December 31, 2016, “Anadarko own[ed] an average working interest of 70% in 327 blocks in the Gulf of Mexico, operat[ed] 10 active floating platforms, and h[eld] interests in 39 fields.”⁶

¹ Anadarko Petroleum Corporation, Form 10-K, December 31, 2016 at p. 4.

² ©2021 Center for Research in Security Prices (CRSP), The University of Chicago Booth School of Business.

³ Anadarko Petroleum Corporation, Form 10-K, December 31, 2016 at p. 86 & Anadarko Petroleum Corporation, Form 10-Q, March 31, 2017 at p. 5.

⁴ Anadarko Petroleum Corporation, Form 10-K, December 31, 2016 at pp. 4 & 7.

⁵ Anadarko Petroleum Corporation, Form 10-K, December 31, 2016 at p. 4.

⁶ Anadarko Petroleum Corporation, Form 10-K, December 31, 2016 at p. 9.

9. One of those 39 fields in the Gulf of Mexico was Shenandoah.⁷ On February 4, 2009, Anadarko announced that “[t]he Shenandoah discovery well ... encountered net oil pay” and that “Anadarko and the co-owners of the discovery are evaluating the well results and the next steps toward future appraisal activity.”^{8,9} Following this discovery, Anadarko subsequently drilled five appraisal wells in Shenandoah. Anadarko began drilling Shenandoah-2 (“Shen-2”) in 2Q 2012, Shenandoah-3 (“Shen-3”) in 2Q 2014, Shenandoah-4 (“Shen-4”) in 2Q 2015, Shenandoah-5 (“Shen-5”) in 1Q 2016, and Shenandoah-6 (“Shen-6”) in 4Q 2016.¹⁰

10. By way of background, below I articulate certain basic facts about oil and gas exploration and production. These facts were publicly available to any market participant or observer, such as me.¹¹ Before reaching the development stage of an oil field (i.e., when oil is actually produced), exploratory wells are drilled followed by appraisal wells. The Shenandoah “discovery well” discussed above is an exploratory well and, as pointed out earlier, Shen-2 through Shen-6 were appraisal wells. While exploration drilling is “carried out to determine whether hydrocarbons are present in a particular area or structure,” an appraisal well is drilled “to determine the physical extent and likely production rate of a field.”¹² The information from drilling an appraisal well is used to determine “the most efficient way of developing a discovery or whether it makes economic sense to drill at all.”¹³ Appraisal wells have a higher chance of

⁷ Anadarko Petroleum Corporation, Form 10-K, December 31, 2016 at p. 9.

⁸ “Anadarko Announces Another Deepwater Gulf of Mexico Discovery,” *Business Wire*, February 4, 2009 (7:28 AM).

⁹ All timestamps throughout the report are in Eastern time unless otherwise specified.

¹⁰ “Cobalt International Energy, Inc. Announces Second Quarter 2012 Results and Successful Cameia #2 Appraisal Well Offshore Angola,” *Business Wire*, July 31, 2012; Anadarko Petroleum Corporation, Form 10-K, December 31, 2014 at p. 9; Anadarko Petroleum Corporation, Form 10-K, December 31, 2015 at p. 10; Anadarko Petroleum Corporation, Form 10-K, December 31, 2016 at p. 11.

¹¹ I am not an oil and gas exploration industry expert and my discussion of this topic is a non-technical one.

¹² Colorado Oil and Gas Conservation Commission Glossary of Oil and Gas Terms, https://cogcc.state.co.us/COGIS_Help/glossary.htm (last accessed December 9, 2021).

¹³ “Back-to-basics: A guide to the different types of wells used by oil & gas companies,” *Value the Markets*, September 11, 2019, <https://www.valuethemarkets.com/analysis/back-to-basics-a-guide-to-the-different-types-of-wells-used-by-oil-gas-companies> (last accessed December 9, 2021).

finding hydrocarbons (i.e., not a “dry hole”) and are more expensive than exploration wells.¹⁴ The chance of success of an appraisal wells depends on the probabilities of several risk elements and “if any of the elements fail then we have an unsuccessful appraisal well.”¹⁵ The Shenandoah project had two dry holes (Shen-3 and Shen-6) and three that found oil (Shen-2, Shen-4, and Shen-5).¹⁶

11. In light of the Shenandoah project’s riskiness, some analysts assigned a low to zero value to Shenandoah. For example, in a report dated July 6, 2015, despite acknowledging that “Shenandoah could be one of the largest GOM [Gulf of Mexico] discoveries,” a Jefferies analyst gave “no credit” to Shenandoah in their “Risk-Adjusted Asset Value.”¹⁷

12. In addition, throughout the purported Class Period, Anadarko disclosed that, at then-prevailing oil prices, it was not going to sanction (i.e., would not develop) the Shenandoah project. For example, on April 12, 2016, a Wellington analyst (i.e., a buy-side analyst) noted:

¹⁴ “Back-to-basics: A guide to the different types of wells used by oil & gas companies,” *Value the Markets*, September 11, 2019 accessed at <https://www.valuethemarkets.com/analysis/back-to-basics-a-guide-to-the-different-types-of-wells-used-by-oil-gas-companies>; Schlumberger Oilfield Glossary, https://glossary.oilfield.slb.com/en/Terms/d/dry_hole.aspx (last accessed December 9, 2021) (defining “dry hole” as a “wellbore that has not encountered hydrocarbons in economically producible quantities.”).

¹⁵ A. Foun, “Risking Appraisal and Development Wells within Oil and Gas Fields,” July 16, 2018, <https://www.linkedin.com/pulse/risking-appraisal-development-wells-within-oil-gas-fields-alan-foun/> (last accessed December 9, 2021). The risk elements mentioned in the article are SCV (structure, contact, and volume), reservoir presence, reservoir effectiveness, hydrocarbon charge, and trap effectiveness.

¹⁶ Anadarko 2013 Form 10-K, at p. 9 (“Similar to the initial Shenandoah discovery, well log and pressure data from the Shenandoah-2 well indicated excellent-quality reservoir and fluid properties. The targeted pay sands were full of oil with no oil-water contact.”); ConocoPhillips 4Q 2014 Earnings Call Transcript, January 29, 2015 (“... some dry hole costs related to the Shenandoah appraisal well that we wrote off as well ...”); “Morning Energy Summary,” Capital One, February 2, 2015, FIAM--ANAD-005012, at 5013 (“ConocoPhillips reported last Thurs that the 2nd appraisal well at Shenandoah was a dry hole.”); “Anadarko Announces Third-Quarter 2015 Results,” Anadarko Press Release, October 27, 2015; Anadarko Petroleum Corporation, Form 10-K, December 31, 2015 at p. 10; “Anadarko Announces Second-Quarter 2016 Results,” Anadarko Press Release, July 26, 2016; “ConocoPhillips Reports First-Quarter 2017 Results; On Track to Delivery 2017 Operating Plan and Accelerate Value Proposition,” ConocoPhillips Press Release, May 2, 2017 (7:00 AM) (“First-quarter earnings were negatively impacted by \$101 million of pre-tax dry hole expense, which includes the Shenandoah-6 well in the Gulf of Mexico.”).

¹⁷ “Oil & Gas Exploration & Production Reduce Nat Gas Price Outlook, Remain Constructive; Upgrade APC, NBL, EOG,” Jefferies, July 6, 2015, JanHen_00035055, at 5055 (“While we believe Shenandoah could be one of the largest GOM discoveries, we currently give no credit in our RAAV [Risk-Adjusted Asset Value] due to needed improvements in drilling technology (new build drillships with dual 20k PSI BOPs), which are unlikely to be available in the near-term.”). See *infra* ¶ 69 for more examples.

“The operator [Anadarko] is on record saying they wouldn’t sanction [Shenandoah] until oil was back in the \$70’s given where costs are today.”¹⁸

13. Ultimately, Anadarko announced the suspension of appraisal activity in Shenandoah in its 1Q 2017 earnings release and 1Q 2017 Form 10-Q after market close on May 2, 2017. Specifically, on May 2, 2017 at 4:16 PM, Anadarko issued a press release noting that it “recently completed drilling operations at the Shenandoah-6 appraisal and sidetrack well, which did not encounter the oil-water contact in the eastern portion of the field” and that the “company has currently suspended appraisal activity in the field while it evaluates the path forward.”¹⁹ Then, a few minutes later at 4:26 PM, Anadarko filed its 1Q 2017 Form 10-Q with the SEC.²⁰ In that Form 10-Q, Anadarko disclosed that “[d]uring the three months ended March 31, 2017, the Company expensed suspended exploratory well costs of \$435 million related to the Shenandoah project in the Gulf of Mexico” and that it would recognize \$467 million of impairments related to the Shenandoah project.²¹

14. Shortly after the filing of its Form 10-Q, news that linked a cut abandoned gas flow line leading from an Anadarko well to a fatal house explosion in Firestone, Colorado was disclosed. At 4:51 PM on May 2, 2017, the *Denver Post* reported that fire investigators found a fatal house explosion on April 17, 2017 in Firestone, Colorado was caused by odorless gas seeping from a cut-off underground pipeline running from an Anadarko well into the house.²² Soon after the firefighters released their report, then Colorado Governor John Hickenlooper ordered oil and gas companies statewide to inspect and pressure-test oil and gas flowlines within

¹⁸ Email from Mark N. Viviano at Wellington dated April 12, 2016 re “Marathon (MRO,1,\$8B): great WY sale but negative Shenandoah comp for APC/CIE, WMC-APC-0000317, at 0321. *See infra* ¶ 70 for more examples.

¹⁹ “Anadarko Announces First-Quarter 2017 Results,” Anadarko Press Release, May 2, 2017 (4:16 PM).

²⁰ Timestamp per SEC.gov, <https://www.sec.gov/Archives/edgar/data/0000773910/000077391017000033/0000773910-17-000033-index.htm> (last accessed December 9, 2021).

²¹ Anadarko Petroleum Corporation Form 10-Q, March 31, 2017, at pp. 13 & 37.

²² “Deadly Firestone explosion caused by odorless gas leaking from cut gas flow pipeline,” *Denver Post*, May 2, 2017 (4:51 PM).

1,000 feet of occupied buildings.²³ Related to this incident, Anadarko shut down 3,000 of its older, vertical oil and gas wells in northeastern Colorado as a precaution.²⁴ In response to this news, at 5:18 PM, Anadarko issued a statement that it would “continue to cooperate fully with all ongoing investigations” and that it would “continue to work with the Colorado Oil and Gas Conservation Commission (COGCC) on additional steps or actions the agency deems necessary.”²⁵ Analysts had an adverse reaction to this news. For example, a Macquarie analyst noted that “[t]he findings of the Firestone investigation are a clear negative for Anadarko” and that “Colorado is already one of the most stringently regulated states in the nation in respect to energy and is likely to see increased pressure following this incident.”²⁶ One analyst estimated that at a cost of \$100,000 per well, the total remediation cost alone could be \$140 million.²⁷

III. Plaintiffs’ Allegations and the Steinholt Report

15. Plaintiffs filed this lawsuit on behalf of purchasers of Anadarko common stock from February 20, 2015 through May 2, 2017 (the purported “Class Period”) alleging that, “[l]eading up to and throughout the Class Period, Defendants engaged in a fraudulent scheme through various means and methods that operated as a deception on the investing public concerning the size and commercial viability of the Shenandoah project and a whistleblower complaint about Defendants’ multi-billion dollar securities fraud.”²⁸ Plaintiffs claim that the “lack of commercial viability of the Shenandoah project was first revealed to the market in Anadarko’s 1Q 2017 Form 10-Q,” which was filed after market close on May 2, 2017.²⁹ Specifically, Plaintiffs claim that Anadarko’s announcement that it was writing off \$435 million

²³ “Deadly Firestone explosion caused by odorless gas leaking from cut gas flow pipeline,” *Denver Post*, May 2, 2017 (4:51 PM).

²⁴ “Deadly Firestone explosion caused by odorless gas leaking from cut gas flow pipeline,” *Denver Post*, May 2, 2017 (4:51 PM).

²⁵ “Anadarko Issues Statement Regarding Firestone Accident,” Anadarko Press Release, May 2, 2017 (5:18 PM).

²⁶ “Where do we go from here?,” Macquarie Research, May 3, 2017, at pp.1-2.

²⁷ “Colorado is Not Macondo,” Credit Suisse, May 3, 2017.

²⁸ Amended Complaint for Violations of The Federal Securities Laws, No. 4:20-vc-00576, U.S. District Court, Southern District of Texas, Houston Division, filed August 17, 2020 (“Complaint”) at ¶ 29.

²⁹ Complaint ¶ 152.

in expensed suspended exploratory well costs and taking a \$467 million impairment of the Shenandoah asset revealed Shenandoah's "lack of commercial viability" to the market.³⁰

16. Plaintiffs submitted the expert report of Bjorn I. Steinholt, CFA, dated October 1, 2021 ("Steinholt Report"). In that report, Mr. Steinholt concludes that "the market in which Anadarko common stock traded throughout the Class Period was impersonal, open, well developed, and efficient in that the market prices quickly responded to incorporate and reflect new, material information as it became publicly available" and "it was reasonable for investors to rely on the integrity of the market prices of Anadarko's common stock throughout the Class Period as reflecting all publicly available information about the Company."³¹ As part of his analysis, Mr. Steinholt claims "to assess 'cause and effect' relating to Company-specific information" by examining "Anadarko's price reactions following the alleged corrective disclosure after the market closed on May 2, 2017."³² Mr. Steinholt finds that "[f]ollowing Anadarko's May 2, 2017 disclosure about Shenandoah, Anadarko's stock price declined ... \$4.33 per share, or 7.69%" on May 3, 2017 and that this price decline "was statistically significant at the 1% level."³³ Mr. Steinholt also opines that "class-wide damages can be calculated in this case using the event-study damages framework."³⁴

IV. Assignment and Summary of Opinions

17. I was asked by Cravath, Swaine & Moore LLP, counsel for Defendants, to analyze whether the alleged misstatements identified in the Complaint and their purported correction with the revelation of the alleged truth had a price impact on Anadarko's stock price. I have also been asked to consider Mr. Steinholt's statements regarding his claimed ability to calculate class-wide damages in this case. In performing this task, I have been assisted by staff at Compass Lexecon. Based on my review of the materials in **Appendix B**, I have formed the following opinions:

³⁰ Complaint ¶ 152.

³¹ Steinholt Report, ¶ 9.

³² Steinholt Report, ¶ 41-42.

³³ Steinholt Report, ¶ 44.

³⁴ Steinholt Report, ¶ 10.

- a. On 18 out of the 21 alleged misstatement dates identified in the Complaint,³⁵ there was no statistically significant price increase.³⁶ On the remaining three alleged misstatement dates, the Shenandoah disclosures on these dates were stale and, as such, assuming markets are efficient, I would not expect Anadarko's stock price to react to these Shenandoah disclosures.³⁷ Moreover, on these three dates, market commentators attributed Anadarko's stock price increase to factors unrelated to Shenandoah.³⁸
- b. There is no reliable economic basis to conclude that the alleged Anadarko May 2, 2017 corrective disclosures about Shenandoah had a price impact on Anadarko's stock price. Specifically:
 - i. Anadarko's disclosure after market close on May 2, 2017 that Shen-6 was a dry hole was previously disclosed by ConocoPhillips, a partner of Anadarko in Shenandoah with a similar percentage of ownership in the project, before market open on May 2, 2017.³⁹ On May 2, 2017, both ConocoPhillips's and Anadarko's stock price reactions were not statistically significant.⁴⁰ This indicates that the disclosure that Shen-6 was a dry hole could not have had an impact on Anadarko's stock price on May 2, 2017.
 - ii. Similarly, Anadarko's disclosures of the suspension of appraisal activity at Shenandoah and the impairment of the value of Shenandoah did not result in a statistically significant price reaction by ConocoPhillips's stock price on May 3, 2017 or when ConocoPhillips itself disclosed similar information on May 5, 2017.⁴¹ This indicates that the Shenandoah disclosures could not have had an impact on Anadarko's stock price on May 3, 2017.
 - iii. The disclosure about a fire and explosion related to an Anadarko well in Firestone, Colorado explains Anadarko's price decline on May 3, 2017. Market commentary and the price declines on May 3, 2017 of the stock prices of the other oil firms that operated in Colorado, which were also affected by the new Colorado

³⁵ Complaint ¶¶ 97-141.

³⁶ See Table 1.

³⁷ Two of Plaintiffs' claims on these dates are mistaken. *Infra* ¶¶ 36 & 38.

³⁸ *Infra* ¶¶ 36-50.

³⁹ "ConocoPhillips Reports First-Quarter 2017 Results; On Track to Deliver 2017 Operating Plan and Accelerate Value Proposition," *Business Wire*, May 2, 2017 (7:00 AM).

⁴⁰ See Table 2.

⁴¹ See Table 3 and 4.

inspection and testing mandate, explain Anadarko's price decline on May 3, 2017.⁴²

- c. The lack of price impact of the alleged misstatements as well as the alleged corrective disclosure is consistent with the economic nature of the disclosures. As discussed earlier, Anadarko's disclosures throughout the purported Class Period as well as contemporaneous market participant commentary reveal that the market was aware of the inherent riskiness of the appraisal stage of the project. Moreover, even if successful, the Shenandoah project's economic viability was dependent on oil prices, which were not at levels that would have made the project viable when the alleged misstatements and the alleged corrective disclosure were made.⁴³
- d. With regards to Mr. Steinholt's statements regarding his ability to calculate class-wide damages in this case, Mr. Steinholt has stated that he will use the same approach (his "event-study damages framework") to damages regardless of whether the theory of liability is a (i) materialization of an undisclosed risk or (ii) the company knew from the outset that Shenandoah was not viable (i.e., the risk of failure was a certainty).⁴⁴ Indeed, Mr. Steinholt testified that it was irrelevant for him to know what Plaintiff's theory of liability is.⁴⁵ How his "event study damages framework" applies to two very different theories concerning what constitutes corrective information (information concerning the undisclosed risk of failure versus information that the project was going to fail with certainty) is left entirely unexplained.

18. I elaborate on the above opinions in the rest of this report.

V. Scientific Foundations for Price Impact Analysis

19. I will begin by providing an overview of stock price behavior and efficient markets before turning to the appropriate analytical framework for conducting a price impact analysis.

A. Stock Price Behavior and Efficient Markets

20. In an efficient market, finance theory dictates that stock prices reflect the expected future cash flows of a company.⁴⁶ These expectations are influenced by market,

⁴² *Infra* ¶¶ 64-66.

⁴³ *Infra* ¶¶ 70-72.

⁴⁴ Virtual Deposition of Bjorn Steinholt, November 17, 2021 ("Steinholt Dep. Tr.") 60:11-61:9.

⁴⁵ Steinholt Dep. Tr. 69:8-17.

⁴⁶ R. Brealey and S. Myers, 2003, *Principles of Corporate Finance* (McGraw-Hill/Irwin), pp. 60-61.

industry, and company-specific factors. In an efficient market, stock prices reflect the total mix of publicly available information regarding these expected future cash flows.⁴⁷ Publicly available information containing such value-relevant information can encompass everything from a company's public SEC filings to newspaper articles.

21. A central tenet of the efficient market hypothesis is that as new information becomes public, stock prices "quickly and fully" reflect that information.⁴⁸ Therefore, only disclosures of information that significantly alter the total mix of publicly available information impact the price of a stock. Only new public information will necessitate a revision of the company's expected future cash flows and the risk thereof and, hence, result in a changed stock price. In other words, only new information is "news" in an efficient market, as previously known or expected information would have already been incorporated into the stock price of a security in an efficient market.⁴⁹ Moreover, in an efficient market, new relevant information would be expected to impact any company to which such information is value relevant, regardless of who released the information.⁵⁰

22. The academic literature has explored how "quickly" new information is "fully" reflected in the stock price in an efficient market. Numerous academic studies indicate that an efficient market's reaction to new events is immediate and unbiased.⁵¹ As stated in the Steinholt Report, Anadarko common stock traded in an efficient market during the purported Class

⁴⁷ R. Brealey, S. Myers, and A. Marcus, 2004, *Fundamentals of Corporate Finance*, McGraw-Hill/Irwin, p. 165.

⁴⁸ C. Jones, 2013, *Investments: Analysis and Management*. John Wiley & Sons, Inc. p. 320.

⁴⁹ See, e.g., E. Elton, M. Gruber, S. Brown, and W. Goetzmann, 2003, *Modern Portfolio Theory and Investment Analysis*, John Wiley & Sons, Inc. p. 403.

⁵⁰ See, e.g., G.W. Schwert, 1981, "Using Financial Data to Measure Effects of Regulation," *Journal of Law and Economics*, Vol. 24, 129-135.

⁵¹ See, e.g., S.P. Kothari, 2001, "Capital Markets Research in Accounting," *Journal of Accounting and Economics*, Vol. 31, 105-231; L. Ederington, and J.H. Lee, 1995, "The Short-Run Dynamics of the Price Adjustment to New Information," *Journal of Financial and Quantitative Analysis*, Vol. 30, 117-134; J. Busse and T.C. Green, 2002, "Market Efficiency in Real Time," *Journal of Financial Economics*, Vol. 65, 415-437; N. Visaltanachoti and T. Yang, 2010, "Speed of Convergence to Market Efficiency for NYSE-listed Foreign Stocks," *Journal of Banking and Finance*, Vol. 34, 594-605; A. Černý, 2004, "Stock Market Integration and the Speed of Information Transmission," Working Papers Series – Charles University, 1-25.

Period.⁵² For the purposes of my analysis, I have assumed that Anadarko common stock traded in an efficient market during the purported Class Period.

23. There is a widely used and generally accepted statistical framework known as an event study for testing whether there was, in fact, a stock price movement associated with the disclosure of new value-relevant public information.⁵³ An event study controls for market and industry effects (estimated with the use of market and industry indices) on the stock price, thereby isolating the portion of the stock price movement that is company-specific (the “abnormal return”).⁵⁴

24. The event study examines whether the observed abnormal, or company-specific, return of a stock over a given time interval (i.e., “event window”) is outside the range of typical random stock price fluctuations observed for that stock.⁵⁵ An event window that compares the closing price on the prior day to the closing price on the day on which the new information was disclosed is typical.⁵⁶ The Steinholt Report filed by Plaintiffs likewise uses this typical market-close to market-close time window for the event study conducted therein.⁵⁷

25. If the abnormal return falls outside the range that accounts for the typical random stock price fluctuations (i.e., a “confidence interval”), it is considered to be statistically significant. If the stock price movement is indistinguishable from random price fluctuations (i.e., falls within the confidence interval), the movement is fully explainable by movements in the

⁵² Steinholt Report, ¶ 9.

⁵³ See, e.g., A. Ferrell and A. Saha, 2007, “The Loss Causation Requirement for Rule 10b-5 Causes-of-Action: The Implication of *Dura Pharmaceuticals v. Broudo*,” *The Business Lawyer*, Vol. 63, 163-186.

⁵⁴ See, e.g., R. Weil, et al., 2007, *Litigation Services Handbook: The Role of the Financial Expert*, John Wiley & Sons, Inc., Appendix A, p. 18.

⁵⁵ To control for market and industry effects, a regression analysis is employed in order to predict the company’s stock return based on the observed market and industry returns. The residual return is then the difference between the company’s actual stock return and the return predicted by the regression model. See, e.g., R. Weil, et al., 2007, *Litigation Services Handbook: The Role of the Financial Expert*, John Wiley & Sons, Inc., Appendix A, p. 19.

⁵⁶ A different event window than the typical close-to-close window may be appropriate depending on the facts and circumstances, such as an event window that runs from market-close to market-open. See, e.g., L. Ederington and J.H. Lee, 1995, “The Short-Run Dynamics of the Price Adjustment to New Information,” *Journal of Financial and Quantitative Analysis*, Vol. 30, 117-134.

⁵⁷ Steinholt Report, Exhibit D.

market and industry and cannot be attributed to the new company-specific information announced on the event date.⁵⁸ An abnormal return is typically considered “statistically significant” in an event study if it lies outside the 95% confidence interval (i.e., lies outside the range that accounts for 95% of random price fluctuations).⁵⁹ An abnormal return that falls outside of the 95% confidence interval is considered to be significant at the 5% level.

26. In order to test whether an observed abnormal return is significant at the 5% level, a “t-statistic” is calculated by dividing the abnormal return by the standard error of the regression.⁶⁰ The probability of observing a given t-statistic by random market fluctuations is then measured. This probability is known as a “p-value.” The lower the p-value, the less likely it is that the price movement is a result of random market fluctuations. Thus, it is when the p-value is 5% (i.e., 0.05) or less that the abnormal return is considered statistically significant. In conducting his event studies on the dates he studied, Mr. Steinholt likewise used 5% as the applicable standard.⁶¹

27. The analysis of stock price behavior does not end with a finding of a statistically significant abnormal return from an event study. Suppose that an event study finds a statistically significant abnormal return that is contemporaneous with a public disclosure of firm-specific information. In order to attribute the stock price movement to the public disclosure, there is still another crucial step in the analysis. As one textbook explains:

An event study can tell us that something happened, but it can’t tell us *why*. To explain positive or negative abnormal returns, we must closely examine the events and institutions involved... The event study technique does not eliminate the need to assess cause through deductive reasoning; it only... helps delineate what needs to be explained.⁶²

⁵⁸ See, e.g., C. Corrado, 2011, “Event Studies: A methodology review,” *Accounting and Finance*, Vol. 51, 209-211.

⁵⁹ Using a 95% confidence interval for determining statistical significance is a standard metric for event studies. See Federal Judicial Center, 2011, *Reference Manual on Scientific Evidence*, National Academies Press, 2011, 320 (“In most scientific work, the level of statistical significance required to reject the null hypothesis (i.e., to obtain a statistically significant result) is set conventionally at 0.05, or 5%.”).

⁶⁰ See, e.g., J. Wooldridge, 2013, *Introductory Econometrics: A Modern Approach*, Cengage Learning, 130.

⁶¹ Steinholt Report, ¶ 41.

⁶² R. Gilson and B. Black, 1995, *The Law and Finance of Corporate Acquisitions*, Foundation Press, 221 (emphasis in original).

28. For example, if the particular disclosure at issue was simply repeating information already known to the market, a researcher could not attribute, consistent with efficient markets, an abnormal return – regardless of whether it happens to be statistically significant – to such a disclosure. Disclosures that simply repeat information already known to the market or that pertain to matters that are irrelevant to market participants would not cause a revision in the company's expected future cash flows or the risks thereof and, hence, would not affect its stock price.

29. Another example is when there are multiple pieces of information disclosed contemporaneously on a day when an event study finds a statistically significant price movement. In such cases, an event study analysis alone cannot determine which piece of information was value-relevant. Moreover, even when there are multiple pieces of value-relevant information, an event study analysis cannot parse out the price impact of the multiple pieces of information.

B. Price Impact and the Alleged Truth

30. The price impact inquiry is focused on stock price reactions to a particular type of disclosure: the alleged truth. Specifically, the price impact inquiry consists of analyzing the following hypothetical: if the company had revealed to the market the alleged truth – rather than concealing it by making the alleged misstatements – would such a disclosure have resulted in a stock price movement? If so, the alleged misstatements have price impact. It is crucial to emphasize that the “alleged truth” that could and should have been disclosed earlier – the focal point of the price impact inquiry – is a function of Plaintiffs' theory of liability. Once the truth that had been allegedly misstated and concealed has been identified by Plaintiffs, a financial economist can then apply the scientific framework discussed above, including event study analysis, to test for price impact.

31. To apply the scientific framework discussed above to this question, the standard approach then is to analyze the stock price behavior when the alleged misstatements and disclosures actually occurred. If the alleged misstatements in fact caused the market to view the company more favorably than before (and presumably more favorably than if it had been told the alleged truth that was being concealed), then one would expect to observe a positive and statistically significant abnormal return on these dates. In a similar vein, a researcher should

analyze stock price behavior when the alleged truth was actually disclosed (the “corrective disclosures”).

C. Price Impact of Shenandoah Disclosures on Anadarko and Price Reaction of ConocoPhillips

32. In this case, we have an additional method to test whether Shenandoah disclosures had a price impact on Anadarko’s stock – ConocoPhillips’s stock price reaction on the dates of the Shenandoah disclosures. During the Class Period, Anadarko and ConocoPhillips had similar working interests in Shenandoah. Anadarko had a 30% working interest in Shenandoah at the start of the purported Class Period, but its ownership later increased to 33% on July 27, 2016 and remained at that level through the end of the purported Class Period.⁶³ By comparison, ConocoPhillips had a 30% working interest in Shenandoah during the entire purported Class Period.⁶⁴ Therefore, given Anadarko’s and ConocoPhillips’s similar level of ownership in Shenandoah, I would expect new value-relevant Shenandoah information to affect both Anadarko and ConocoPhillips. Consistent with this, Mr. Steinholt testified that one can look at the price reaction of ConocoPhillips to determine whether disclosures related to Shenandoah would affect Anadarko.⁶⁵ In light of the above, in my analysis of alleged misstatement dates and alleged corrective disclosures below, I use the price reaction, if any, of ConocoPhillips as an additional test of whether new value-relevant information related to Shenandoah would have a price impact on Anadarko.

33. I will now apply the scientific framework discussed above to assess whether there was a price impact on Anadarko’s common stock price associated with the alleged misstatements. I will do so in two steps. First, I will assess whether the alleged misstatements in the Complaint caused a price impact when made by analyzing whether they caused positive and statistically significant abnormal returns on those dates. Second, I will assess whether the alleged

⁶³ Anadarko Petroleum Corporation SEC Form 10-K, December 31, 2013 at p. 9 & Anadarko Petroleum Corporation SEC Form 10-K, December 31, 2016 at p. 11.

⁶⁴ ConocoPhillips SEC Form 10-K, December 31, 2014 at p. 8 & ConocoPhillips SEC Form 10-K, December 31, 2016 at p. 7.

⁶⁵ Steinholt Dep. Tr. 13:15-21 (“Q: You said that the corrective disclosure here was unexpected. What’s your basis for saying that?” A: “It’s by reading analyst reports, by reading or by looking at the reaction by other partners, Cobalt and Conoco Philips [sic].”).

corrective disclosure concerning Shenandoah that supposedly revealed the truth caused a price impact at the time it was made.

VI. Analysis of Alleged Misstatement Dates

34. Plaintiffs identified 21 alleged misstatement dates in the Complaint. **Table 1** below details the results of the event study regression analysis for each of the alleged misstatement dates. Specifically, it reports for each alleged misstatement date Anadarko's abnormal return, the associated t-statistic, and whether the abnormal return is statistically significant at the 5% level (i.e., whether the absolute value of the t-statistic is greater than or equal to 1.96).

Table 1
Regression Results for Alleged Misstatements

	Timestamp	Event	Statistics	Results
	[A]	[B]	[C]	[D]
1	02/20/15 4:35 PM (Price Reaction Date: 02/23/15)	Anadarko files 2014 Form 10-K. (Complaint ¶¶ 97-99)	Abnormal Return t-Statistic Positive and Stat. Significant?	0.63% 0.48 No
2	03/03/15 8:50 AM (Price Reaction Date: 03/03/15)	Anadarko issues capital expectations and guidance press release and hosts 2015 capital program and guidance conference call with investors and analysts. (Complaint ¶¶ 101-103)	Abnormal Return t-Statistic Positive and Stat. Significant?	0.39% 0.30 No
3	5/4/15 4:22 PM (Price Reaction Date: 5/5/15)	Anadarko files 1Q 2015 Form 10-Q. (Complaint ¶ 104)	Abnormal Return t-Statistic Positive and Stat. Significant?	-2.20% -2.31 No
	5/5/15 9:00 AM (Price Reaction Date: 5/5/15)	Anadarko hosts 1Q 2015 earnings call. (Complaint ¶ 105)		
4	5/20/15 9:30 AM (Price Reaction Date: 5/20/15)	Anadarko hosts the UBS Global Oil and Gas Conference. (Complaint ¶ 106)	Abnormal Return t-Statistic Positive and Stat. Significant?	-0.73% -0.77 No
5	7/28/15 4:05 PM (Price Reaction Date: 7/29/15)	Anadarko issues 2Q 2015 press release. (Complaint ¶ 107)	Abnormal Return t-Statistic Positive and Stat. Significant?	2.98% 3.44 Yes

	7/29/15 9:00 AM (Price Reaction Date: 7/29/15)	Anadarko hosts 2Q 2015 earnings call. (Complaint ¶ 108)		
6	10/27/15 4:05 PM (Price Reaction Date: 10/28/15)	Anadarko issues 3Q 2015 press release. (Complaint ¶ 109)	Abnormal Return t-Statistic Positive and Stat. Significant?	-2.67% -2.98 No
	10/28/15 9:00 AM (Price Reaction Date: 10/28/15)	Anadarko 3Q 2015 earnings call (Complaint ¶¶ 110-112)		
7	11/11/15 10:18 AM (Price Reaction Date: 11/11/15)	Anadarko hosts call with investors and analysts. (Complaint ¶ 113)	Abnormal Return t-Statistic Positive and Stat. Significant?	-0.00% -0.00 No
8	2/2/16 9:00 AM (Price Reaction Date: 2/2/16)	Anadarko hosts 4Q 2015 earnings call. (Complaint ¶ 114)	Abnormal Return t-Statistic Positive and Stat. Significant?	7.36% 5.53 Yes
9	2/17/16 6:29 AM Price Reaction Date: 2/17/16)	Anadarko files 2015 Form 10-K. (Complaint ¶¶ 115-118)	Abnormal Return t-Statistic Positive and Stat. Significant?	-0.10% -0.07 No
10	2/24/16 10:40 AM (Price Reaction Date: 2/24/16)	Credit Suisse Energy Summit with investors and analysts. (Complaint ¶ 119)	Abnormal Return t-Statistic Positive and Stat. Significant?	-0.46% -0.31 No
11	3/1/16 8:50 AM (Price Reaction Date: 3/1/16)	Anadarko issues 2016 initial capital expectations and guidance press release. (Complaint ¶ 120)	Abnormal Return t-Statistic Positive and Stat. Significant?	3.91% 2.58 Yes
12	5/3/16 9:00 AM (Price Reaction Date: 5/3/16)	Anadarko hosts 1Q 2016 earnings call. (Complaint ¶ 121)	Abnormal Return t-Statistic Positive and Stat. Significant?	0.74% 0.45 No
13	5/11/16 9:00 AM (Price Reaction Date: 5/11/16)	Citi Global Energy & Utilities Conference with investors and analysts. (Complaint ¶ 123)	Abnormal Return t-Statistic Positive and Stat. Significant?	1.21% 0.72 No

14	5/24/16 1:55 PM (Price Reaction Date: 5/24/16)	UBS Global Oil and Gas Conference with investors and analysts. (Complaint ¶¶ 124-126)	Abnormal Return t-Statistic Positive and Stat. Significant?	0.61% 0.36 No
15	6/28/16 9:40 AM (Price Reaction Date: 6/28/16)	JPMorgan Inaugural Energy Conference with investors and analysts. (Complaint ¶¶ 127-128)	Abnormal Return t-Statistic Positive and Stat. Significant?	-0.89% -0.52 No
16	7/26/16 4:05 PM (Price Reaction Date: 7/27/16)	Anadarko issues 2Q 2016 press release. (Complaint ¶ 131)	Abnormal Return t-Statistic Positive and Stat. Significant?	0.08% 0.05 No
	7/26/16 4:54 PM (Price Reaction Date: 7/27/16)	Anadarko files 2Q 2016 Form 10-Q. (Complaint ¶¶ 129-130).		
	7/27/2016 9:00 AM (Price Reaction Date: 7/27/16)	Anadarko hosts 2Q 2016 conference call. (Complaint ¶¶ 132-133)		
17	8/16/16 4:45 PM (Price Reaction Date: 8/17/16)	EnerCom Oil & Gas Conference with investors and analysts. (Complaint ¶ 134)	Abnormal Return t-Statistic Positive and Stat. Significant?	0.13% 0.07 No
18	9/14/16 12:00 PM (Price Reaction Date: 9/14/16)	UBS Houston Energy Bus-Less Tour with investors and analysts. (Complaint ¶ 135)	Abnormal Return t-Statistic Positive and Stat. Significant?	-1.56% -0.89 No
19	11/01/16 9:00 AM (Price Reaction Date: 11/01/16)	Anadarko hosts 3Q 2016 earnings call with investors and analysts. (Complaint ¶ 136)	Abnormal Return t-Statistic Positive and Stat. Significant?	1.54% 0.88 No
20	2/01/17 9:00 AM (Price Reaction Date: 2/1/17)	Anadarko hosts 4Q 2016 earnings call with investors and analysts. (Complaint ¶ 137)	Abnormal Return t-Statistic Positive and Stat. Significant?	-1.02% -0.68 No
21	2/17/17 6:35 AM (Price Reaction Date: 2/17/17)	Anadarko files 2016 Form 10-K. (Complaint ¶¶ 138-140)	Abnormal Return t-Statistic Positive and Stat. Significant?	0.24% 0.17 No

Sources: Complaint, ¶¶ 97-99, 101-121, 123-140; Ferrell Report Appendix D. The sources for date and timestamp information are listed in Appendix B.

35. As the table above shows, on 18 out of the 21 dates, Anadarko's stock price did not increase by a statistically significant amount. On the three dates when Anadarko's stock price

did increase by a statistically significant amount, I find that those stock price increases were attributed to factors unrelated to Shenandoah. I discuss each of these three dates with statistically significant price increases in turn below.

A. July 28, 2015

36. Plaintiffs claim that Anadarko's press release on July 28, 2015 after market close contained the alleged misstatement that Anadarko had "[a]chieved large-scale project milestones in the Gulf of Mexico."⁶⁶ However, this sentence does not refer to Shenandoah, but rather to Lucius, a different Gulf of Mexico facility. In the same press release, Anadarko disclosed that Lucius "achieved name-plate capacity of 80,000 BOPD with production stabilizing during the quarter."⁶⁷ The only reference to Shenandoah in this press release appears two paragraphs later, with a paragraph about Anadarko's Mozambique liquefied natural gas project in between.⁶⁸ Therefore, Plaintiffs' claim is mistaken.

37. Plaintiffs also claim that Anadarko's press release contained the alleged misstatement that "Anadarko spud its third appraisal well in the Shenandoah field."⁶⁹ However, investors were already aware that Anadarko planned to drill its third appraisal well during 2Q 2015. For example, in Anadarko's 2014 Form 10-K, the Company stated: "Planning is underway for the next appraisal well, which the Company expects to spud in the second quarter of 2015."⁷⁰ Assuming an efficient market, Anadarko's stock would not react to the disclosure of this stale or expected information.

38. Plaintiffs also claim that Anadarko's statement during a July 29, 2015 2Q 2015 conference call contained the alleged misstatement that "Coronado is part of the Shenandoah mini-basin. We've got a discovery there that we have appraised. So we think we've got a pretty good handle on what it is. We recently picked up our blocks again; we had some expiries that we had to put back in, and then picked them back up. That's going to stay that way until we have a

⁶⁶ Complaint ¶ 107 & Table 1.

⁶⁷ "Anadarko Announces Second-Quarter 2015 Results," *PR Newswire*, July 28, 2015 (4:05 PM).

⁶⁸ "Anadarko Announces Second-Quarter 2015 Results," *PR Newswire*, July 28, 2015 (4:05 PM).

⁶⁹ Complaint ¶ 107.

⁷⁰ Complaint ¶ 97.

Shenandoah development put in place, because we see it as a tie-back through that facility.”⁷¹ However, this alleged misstatement does not refer to the Shenandoah project, but rather to Coronado, a different appraisal project located in the Shenandoah basin. In its 2013 Form 10-K, Anadarko stated: “In the Shenandoah basin in Walker Ridge, discoveries were successfully drilled at Coronado (35% working interest).”⁷² Therefore, Plaintiffs’ claim is mistaken.

39. As further confirmation of this result, I evaluated the price impact of the alleged Shenandoah misstatements by analyzing whether such statements had a price impact on ConocoPhillips, which did not have other firm-specific, value relevant news on this date. ConocoPhillips had a 30% interest in the Shenandoah project and, thus, value-relevant Shenandoah news would impact both Anadarko’s stock price as well as ConocoPhillips’s stock price.⁷³ However, my event study finds that ConocoPhillips’s stock did not have a statistically significant price increase on this date, which demonstrates the lack of a price impact of the alleged Shenandoah misstatements on Anadarko’s stock.

40. I also reviewed available analyst reports on Anadarko to determine whether the alleged misstatements could have had a price impact on Anadarko’s stock.⁷⁴ I reviewed 30 reports (issued by 26 different analyst firms, including 17 analyst firms identified by Mr. Steinholt) on Anadarko published after the alleged misstatement during July 28-29, 2015 and found that Shenandoah was not mentioned in 22 of the 30 analyst reports (73%).⁷⁵ In the

⁷¹ Complaint ¶ 108

⁷² Anadarko Petroleum Corporation SEC Form 10-K, December 31, 2013 at p. 9.

⁷³ ConocoPhillips had a 30% interest and Anadarko had a 33% interest. ConocoPhillips Form 10-K, December 31, 2016 at p. 7 & Anadarko Petroleum Corporation Form 10-K, December 31, 2016 at p. 11.

⁷⁴ Mr. Steinholt specifically identifies 27 analyst firms in his report. Steinholt Report, ¶27. For my review of analyst reports published during July 28-29, 2015 (as well as February 2-3 and March 1-2, 2016 discussed below), I obtained Anadarko reports from the Capital IQ, FactSet, Refinitiv and Eikon databases published by the analyst firms identified by Mr. Steinholt. I then supplemented this set with additional reports available from these databases (i.e., issued by analyst firms not identified by Mr. Steinholt) and with reports provided to me by counsel for Defendants that were not available from these databases (e.g., Goldman Sachs analyst reports). The reports I reviewed are listed in **Appendix B**.

⁷⁵ The analyst firms that published reports during July 28-29, 2015 that do not mention Shenandoah are Atlantic Equities; Barclays Capital, Inc.; Bernstein; BMO Capital Markets; Capital One; CFRA Equity Research; Evercore ISI; Goldman Sachs; Guggenheim Securities; Johnson & Rice; Morgan Stanley; Morningstar; Oppenheimer; Raymond James & Associates; RBC Capital Markets (4 Reports); Scotiabank; Simmons & Company (Piper Sandler); and Wells Fargo Securities, LLC (2 reports).

remaining eight reports (27%), none of the analysts mentioned Shenandoah when adjusting estimates or price targets.⁷⁶ I also reviewed the analyst commentary within these reports and found that analysts overwhelmingly reported that Anadarko exceeded earnings, oil production, and cash flow expectations during the quarter, rather than the alleged misstatements. For example, a Wells Fargo analyst that did not mention Shenandoah stated “Takeaway: Positive. Strong quarter big EPS beat on crude production and lower expenses.”⁷⁷ Likewise, an Atlantic Equities analyst that did not mention Shenandoah reported: “Strength in domestic oil output...driven by the Lucius and Wattenberg projects allied to good cost control helped push results ahead of guidance and consensus.”⁷⁸ Similarly, an RBC analyst that did not mention Shenandoah stated that they “expect APC shares to trade higher due to the strong cash flow and operational update.”⁷⁹ In addition, a Barclays analyst that did not mention Shenandoah noted that they “believe investors will react positively to Anadarko’s 2Q15 earnings and operational update.”⁸⁰

41. I also searched for press articles related to Anadarko on July 28-29, 2015.⁸¹ Based on my review of these news articles, I did not find articles that attributed Anadarko’s price increase on July 29, 2015 to the alleged misstatement. I did however find press articles that reported that Anadarko’s strong earnings and production report, rather than the alleged misstatements related to Shenandoah, were the reasons behind the price increase on July 29, 2015. For example, *The Financial Times* reported: “Investors pushed shares of Anadarko Petroleum higher after the US oil and gas company reported an unexpected profit in the second

⁷⁶ The analyst firms that published reports during July 28-29, 2015 that mention Shenandoah are: Bank of America Merrill Lynch; Cowen and Company; Deutsche Bank; Global Hunter Securities; GMP Securities; Societe Generale; UBS; and Wolfe Research.

⁷⁷ “APC: Positive—Strong Crude Production, Lower Expenses,” Wells Fargo, July 28, 2015, APC-00186483, at 6483.

⁷⁸ “Strong US oil output and good cost control, Atlantic Equities,” July 29, 2015.

⁷⁹ “APC – 2Q15 Earnings Beat; Oil Production Outlook Increased,” RBC Capital Markets, July 28, 2015 (5:33 PM), JanHen_00040613, at 0613.

⁸⁰ “APC: Strong Beat Driven by Liquids Volumes,” Barclays, July 28, 2015, APC-00186477, at 6477.

⁸¹ Specifically, I searched the Lexis-Nexis and Factiva databases for news articles with “Anadarko” in the headline and lead paragraph.

quarter, amid the protracted drop in crude prices, by boosting oil production but keeping operating costs low.”⁸²

42. Given the above, the price movement in Anadarko’s stock cannot be ascribed to the alleged misstatements on this date.

B. February 2, 2016

43. Plaintiffs claim that Anadarko made the following misstatement in its February 2, 2016 earnings call: “These other longer-dated projects [such as Shenandoah], we believe today are worthy of spending capital, expecting that oil is not going to be at \$30 for the rest of our life” (bracketed text is part of original quote).⁸³ Investors were already aware that Anadarko planned to invest in longer-dated projects despite low oil prices. On October 28, 2015, the company had stated: “Given the challenging supply and demand fundamentals and continued uncertainty around sustainably longer oil prices -- sustainably higher oil prices, you can expect us to see continued investment in higher percentage longer cycle opportunities, such as exploration, where we achieved some very encouraging early results offshore Colombia as well as success delineating our activities at Shenandoah.”⁸⁴ Assuming an efficient market, Anadarko’s stock would not react to the disclosure of this stale or expected information.

44. Similar to the July 28, 2015 alleged misstatements, I evaluated the price impact of the alleged misstatement on this date by analyzing whether this misstatement had a price impact on ConocoPhillips, which did not have other firm-specific, value relevant news on this date. My event study finds that ConocoPhillips’s stock did not have a statistically significant price increase on this date, which demonstrates the lack of a price impact of the alleged Shenandoah misstatement on Anadarko’s stock.

45. I also reviewed available analyst reports on Anadarko to determine whether the alleged misstatement could have had a price impact on Anadarko’s stock. I reviewed 24 reports (issued by 20 different analyst firms, including 13 analyst firms identified by Mr. Steinholt) on Anadarko published after the alleged misstatement during February 2-3, 2016 and found that

⁸² “Anadarko jumps after earnings surprise,” *Financial Times*, July 29, 2015 (2:05 PM).

⁸³ Complaint ¶ 114.

⁸⁴ Anadarko Petroleum FQ3 2015 Earnings Call Transcript, October 28, 2015.

Shenandoah was not even mentioned in 14 of 24 analyst reports (58%).⁸⁵ In the remaining 10 reports (42%), none of the analysts mentioned Shenandoah when adjusting estimates or price targets.⁸⁶ I also reviewed the analyst commentary within these reports and found that analysts focused on Anadarko performance in the preceding quarter, rather than the alleged misstatements. For example, a Barclays analyst wrote that “[w]e expect a positive reaction to Anadarko’s 4Q15 earnings release and operational update. APC posted earnings and cash flow numbers that were above both Barclays’ and consensus.”⁸⁷ Similarly, a Jefferies analyst wrote: “Positive initial take on 4Q release on better than expected EPS on higher volumes and lower costs.”⁸⁸ Likewise, a Capital One analyst stated: “Positive. 4Q results were solid, and more importantly, APC’s preliminary CAPEX guidance of \$2.8B is much closer to our \$2.5B est than the Street’s \$4.5B est, so the projected outspend should be significantly lower than most expect. This should be welcome news.”⁸⁹

46. I also searched for press articles related to Anadarko on February 2-3, 2016.⁹⁰ Based on my review of these news articles, I did not find articles that attributed Anadarko’s price increase on February 2, 2016 to the alleged misstatement. I did however find press articles that reported that Anadarko’s earnings report, rather than the alleged misstatement, can explain the price increase on February 2, 2016. For example, as *Reuters News* explained: “Shares of [Anadarko] rose 2.8 percent to \$29.30 in Tuesday afternoon trading after the dividend comments assuaged concerns about Anadarko’s cash management. The company also posted better-than-

⁸⁵ The analyst firms that published reports during February 2-3, 2016 that do not mention Shenandoah are: Atlantic Equities; CFRA Equity Research (2 reports); Goldman Sachs; Guggenheim Securities LLC; Macquarie Research; Morningstar; Raymond James & Associates; RBC Capital Markets; Scotiabank Global Banking and Market; Simmons & Company (Piper Sandler) (2 reports); Wells Fargo Securities, LLC (2 Reports).

⁸⁶ The analyst firms that published reports during February 2-3, 2016 that mention Shenandoah are: Barclays Capital, Inc; BMO Capital Markets; Bank of America Merrill Lynch; Credit Suisse; Johnson & Rice; MUFG Securities Americas Inc; Societe Generale; UBS (2 reports); and Wolfe Research.

⁸⁷ “APC Cuts 2016 Budget 50% vs. 2015. Will Discuss 2016 Outlook on Conference Call Tomorrow, but Detailed Guidance to Come March 1st,” Barclays, February 1, 2016.

⁸⁸ “Solid Q4 Operating Results, Prelim Capex Down 50%,” Jefferies, February 1, 2016, JEFF00007303, at 7303.

⁸⁹ “APC 4Q A Quick Take,” Capital One, February 2, 2016.

⁹⁰ Specifically, I searched the Lexis-Nexis and Factiva databases for news articles with “Anadarko” in the headline and lead paragraph.

expected results late on Monday.”⁹¹ Additionally, *TheStreet.com* reported: “Anadarko Petroleum Corp. shares are rallying 4.26% to \$39.88 in after-hours trading Monday following the company’s fourth quarter fiscal 2015 earnings results reported today after the closing bell. During the latest quarter, the company reported a loss of 57 cents a share, better than Wall Street’s expectations of a loss of \$1.09 a share.”⁹²

47. Given the above, the price movement in Anadarko’s stock cannot be ascribed to the alleged misstatement on this date.

C. March 1, 2016

48. Plaintiffs claim that Anadarko’s press release on March 1, 2016 before the market open contained the alleged misstatement that Anadarko “plans to advance existing discoveries through appraisal activities at Shenandoah.”⁹³ Investors were already aware that Anadarko planned to “advance” with appraisals of Shenandoah. On February 24, 2016, Anadarko stated that “we still are advancing the project, but we’re a ways away from a sanction at Shenandoah.”⁹⁴ Assuming an efficient market, Anadarko’s stock would not react to the disclosure of this stale information. As further evidence, ConocoPhillips’s stock did not have a statistically significant price increase on this date, which demonstrates the lack of a price impact of the alleged Shenandoah misstatement on Anadarko’s stock.

49. I also reviewed available analyst reports on Anadarko to determine whether the alleged misstatement could have had a price impact on Anadarko’s stock. I reviewed 25 reports (issued by 22 different analyst firms, including 17 analyst firms identified by Mr. Steinholt) on Anadarko published after the alleged misstatement during March 1-2, 2016 and found that Shenandoah was not even mentioned in 17 of 25 analyst reports (68%).⁹⁵ In the remaining eight

⁹¹ “UPDATE 1-Anadarko says it may cut dividend due to high yield,” *Reuters News*, February 2, 2016 (2:21 PM).

⁹² “Anadarko Petroleum (APC) Stock Pops in After-Hours Trading on Improving Quarterly Earnings, *The Street.com*, February 1, 2016 (4:30 PM).

⁹³ Complaint ¶120.

⁹⁴ Anadarko Petroleum Company Conference Presentation, February 24, 2016.

⁹⁵ The analyst firms that published reports during March 1-2, 2016 that do not mention Shenandoah are: Acquisdata; Cowen and Company (2 reports); Deutsche Bank; Guggenheim Securities LLC; Jefferies; Johnson & Rice; Macquarie Research; Morgan Stanley; Morningstar; MUFG Securities Americas Inc.;

reports (32%), none of the analysts mentioned Shenandoah when adjusting estimates or price targets.⁹⁶ I also reviewed the analyst commentary within these reports and found that analysts focused on Anadarko's capital program for 2016, rather than the alleged misstatement. For example, a Capital One analyst stated: "APC's official '16 guidance & investor call this morning offered few surprises, but mgmt did reiterate the company has no plans or need to issue new equity and it essentially upsized the asset sale/monetization program to \$2.0B - \$3.0B vs \$1.3B already announced so far this year."⁹⁷ Likewise, a Johnson Rice analyst explained that "[w]ith the major parameters of 2016 guidance already disclosed, one of the most important things Anadarko did with its guidance call was put another punctuation mark on its declaration that they did not see a need to raise equity in the near term."⁹⁸

50. I also searched for press articles related to Anadarko on March 1-2, 2016.⁹⁹ Based on my review of these news articles, I did not find articles that attributed Anadarko's price increase on March 1, 2016 to the alleged misstatement. I did however find press articles that reported that Anadarko's earnings report, rather than the alleged misstatement, can explain the price increase on March 1, 2016. For example, *TheStreet.com* reported that "Anadarko Petroleum stock is rising 6.38% to \$40.37 in afternoon trading on Tuesday, as the oil and gas producer plans to reduce 2016 capital spending by roughly half."¹⁰⁰ Also, *Benzinga* reported that "[s]hares

RBC Capital Markets (2 reports); Simmons & Company (Piper Sandler); Societe Generale; and Wells Fargo Securities, LLC (2 reports).

⁹⁶ The analyst firms that published reports during March 1-2, 2016 that mention Shenandoah are: Barclays Capital, Inc; Bank of America Merrill Lynch; Capital One; Credit Suisse; Evercore ISI; Scotiabank Global Banking and Market; UBS and Wolfe Research.

⁹⁷ "APC: '16 Guidance and Investor Call Recap," Capital One Securities, March 1, 2016, FIAM-ANAD-008678, at 8678.

⁹⁸ "Targeting \$700MM to \$1.5B in Add'l Asset Sales, Building Liquidity into 2H16," Johnson Rice & Company, March 2, 2016.

⁹⁹ Specifically, I searched the Lexis-Nexis and Factiva databases for news articles with "Anadarko" in the headline and lead paragraph.

¹⁰⁰ "Anadarko Petroleum (APC) Stock Surges, Slashes Capital Budget by Half," *TheStreet.com*, March 1, 2016 (1:16 PM).

of Anadarko Petroleum Corporation (NYSE: APC) were trading higher by nearly 5 percent Tuesday afternoon after the company announced its 2016 capital program.”¹⁰¹

51. Given the above, the price movement in Anadarko’s stock cannot be ascribed to the alleged Shenandoah misstatement on this date.

VII. Analysis of the Alleged Corrective Disclosure Date

52. I will now analyze whether the alleged corrective disclosures concerning Shenandoah caused a negative price impact. Consistent with the scientific framework I described at the beginning of my report, my analysis consists of both assessing whether a disclosure is value-relevant new public information and, moreover, whether there was in fact a negative statistically significant abnormal return associated with such a disclosure. I find no reliable economic evidence that the alleged corrective disclosures concerning Shenandoah had a price impact on Anadarko’s stock.

53. Before delving into my analysis, I first address Mr. Steinholt’s claim that he “examined Anadarko’s price reactions following the alleged corrective disclosure after the market closed on May 2, 2017” and found the “May 3, 2017 residual decline in Anadarko’s stock price was statistically significant at the 1% level,”¹⁰² suggesting that the alleged corrective disclosure concerning Shenandoah had a price impact. Mr. Steinholt seems to have backtracked at his deposition when he testified that he was actually not referring specifically to the Shenandoah disclosures but he was “referring to the totality of the information disclosed in that particular day.”¹⁰³ In any case, Mr. Steinholt’s analysis is flawed. Mr. Steinholt assumed in his report that all of the information contained in the alleged corrective disclosures concerning Shenandoah was new. But at his deposition, Mr. Steinholt testified he was aware that the disclosure that Shen-6 was a dry hole was not new, as it had been disclosed earlier by ConocoPhillips.¹⁰⁴ Mr. Steinholt also testified that he was aware that the disclosures about the

¹⁰¹ “Investors Are Bullish On Anadarko Petroleum Following 2016 Capital Program,” *Benzinga*, March 1, 2016 (7:53 PM).

¹⁰² Steinholt Report, ¶¶ 42 & 44.

¹⁰³ Steinholt Dep. Tr. 47:17-19.

¹⁰⁴ Steinholt Dep. Tr. 51:18-20 (“If your point is that Conoco Philips [*sic*] had some reference to the Shenandoah number 6, well, I’m aware of that...”).

suspension of appraisal activity at Shenandoah and the impairment of the value of Shenandoah would have a similar impact on ConocoPhillips,¹⁰⁵ yet he failed to take that into consideration. Similarly, Mr. Steinholt testified that he was aware that the news linking an Anadarko well to a house explosion in Colorado that was also disclosed after market close on May 2, 2017 would have a similar impact on Noble Energy, yet again he failed to take that into consideration.¹⁰⁶ In short, Mr. Steinholt's suggestion that the alleged corrective disclosures had a price impact is flawed.

54. Now I turn to discussing the three pieces of Shenandoah information disclosed by Anadarko after market close on May 2, 2017: (1) that Shen-6 was a dry hole; (2) that Anadarko was suspending appraisal activity at Shenandoah; and (3) that Anadarko was taking an impairment charge related to the Shenandoah project.^{107, 108} With respect to the disclosure that Shen-6 was a dry hole, this information was stale as of May 3, 2017 as ConocoPhillips had disclosed before market open on the previous day that "[f]irst-quarter earnings were negatively impacted by \$101 million of pre-tax dry hole expense, which includes the Shenandoah-6 well in the Gulf of Mexico."^{109, 110} On the day the information regarding Shen-6 was disclosed, Anadarko's stock price did not have a statistically significant price change.¹¹¹ See **Table 2**. The above demonstrates that Anadarko's subsequent disclosure that Shen-6 was a dry hole did not

¹⁰⁵ Steinholt Dep. Tr. 13:15-21.

¹⁰⁶ Steinholt Dep. Tr. 28:8-12.

¹⁰⁷ "Anadarko Pete 1Q Loss/Shr 58c > APC," Dow Jones Institutional News, May 2, 2017 (4:16 PM); Anadarko Petroleum Corporation Form 10-Q, March 31, 2017 at p. 37.

¹⁰⁸ In his deposition, Mr. Steinholt testified that he didn't think the alleged corrective disclosures concerning Shenandoah was particularly complex and that it would have been incorporated into the stock price within one day. See Steinholt Dep. Tr. 12:22-13:5.

¹⁰⁹ "ConocoPhillips Reports First-Quarter 2017 Results; On Track to Deliver 2017 Operating Plan and Accelerate Value Proposition," *Business Wire*, May 2, 2017 (7:00 AM).

¹¹⁰ Anadarko and ConocoPhillips had similar stakes in the Shenandoah project. ConocoPhillips had a 30% interest and Anadarko had a 33% interest. ConocoPhillips Form 10-K, December 31, 2016 at p. 7 & Anadarko Petroleum Corporation Form 10-K, December 31, 2016 at p. 11.

¹¹¹ Mr. Steinholt acknowledged in deposition testimony that ConocoPhillips did not have a statistically significant price decline on May 2, 2017. Steinholt Dep. Tr. 16:3-23 ("Q. Right, but just sitting here today, do you know what the Conoco Philips [sic] stock price reaction was on the day of the Anadarko corrective disclosure? ... A ... I don't think there was a statistically significant price decline on either of those two days ... when Conoco Philips [sic] announced their first quarter earnings or when Anadarko announced their first quarter earnings.").

have a price impact on Anadarko's stock on May 3, 2017, assuming Anadarko's stock traded in an efficient market as Mr. Steinholt claims.

Table 2
Stock Price Reaction of Anadarko, ConocoPhillips, and Cobalt on May 2, 2017

		Anadarko	ConocoPhillips	Cobalt
Raw Return	[A]	-0.69%	-1.64%	-4.40%
Predicted Return ⁽¹⁾	[B]	-1.00%	-0.89%	-2.45%
Abnormal Return	[C = A - B]	0.31%	-0.75%	-1.95%
t-Statistic	[D]	0.28	-0.68	-0.35
Statistically Significant? ⁽²⁾	[E]	No	No	No

Notes: (1) Ferrell Report Appendix D. (2) Statistical significance at the 5% level is denoted by a t-statistic with an absolute value of 1.96 or greater.

55. Moreover, analysts following Anadarko also reported that Anadarko's Shenandoah dry hole disclosure after market close on May 2, 2017 was stale. For example, a JPMorgan analyst noted: "As previously highlighted by its partners, the Shenandoah-6 appraisal well designed to test the oil-water contact on the eastern edge of the field was unsuccessful, and APC has decided to suspend appraisal activity at the field."¹¹² Similarly, an Evercore analyst described it as "a massive (not completely unexpected) write down at Shenandoah."¹¹³ In an efficient market, if there was a price impact on Anadarko's stock related to the disclosure that Shen-6 was a dry hole, one would observe such a price reaction on May 2, 2017, not May 3, 2017. Yet, as **Table 2** shows, Anadarko's stock did not have a statistically significant price change on May 2, 2017. In addition, the table also reflects that both ConocoPhillips and Cobalt, another partner of Anadarko in Shenandoah, also did not have statistically significant price changes on May 2, 2017.¹¹⁴

56. With respect to Anadarko's disclosures regarding the suspension of appraisal activity at Shenandoah and the impairment of the value of Shenandoah, the price impact, if any,

¹¹² "JQ17 Flash: Unfortunately, It's Déjà Vu All Over Again; Stock Reaction Mixed – ALERT," J.P. Morgan, May 2, 2017, FIAM-ANAD-009291, at 9292.

¹¹³ "In the Teeth of the Transition, 1Q Outlook Poses Challenges to the Thesis," Evercore ISI, May 3, 2017, APC-00737551 at 7551.

¹¹⁴ The methodology for the Anadarko, ConocoPhillips, and Cobalt event studies are described in **Appendix D**.

of these disclosures would have been observed on May 3, 2017. As **Table 3** shows, Anadarko had a statistically significant price decline on that day. However, as discussed above, there were multiple pieces of news that were disclosed contemporaneously by Anadarko, including news unrelated to the Shenandoah project.

Table 3
Stock Price Reaction of Anadarko, ConocoPhillips, and Cobalt on May 3, 2017

		Anadarko	ConocoPhillips	Cobalt
Raw Return	[A]	-7.69%	0.81%	-11.38%
Predicted Return ⁽¹⁾	[B]	0.21%	0.10%	0.12%
Abnormal Return	[C = A – B]	-7.91%	0.71%	-11.26%
t-Statistic	[D]	-7.11	0.64	-2.01
Statistically Significant? ⁽²⁾	[E]	Yes	No	Yes

Notes: (1) Ferrell Report Appendix D. (2) Statistical significance at the 5% level is denoted by a t-statistic with an absolute value of 1.96 or greater.

57. In order to properly assess the price impact of Anadarko's disclosures regarding the suspension of appraisal activity at Shenandoah and the impairment of the value of Shenandoah, I analyzed the price movement of ConocoPhillips, which did not have other firm-specific value-relevant news on May 3, 2017. As the table above shows, there was no statistically significant price change in ConocoPhillips's stock price on May 3, 2017, which demonstrates the lack of a price impact of the alleged corrective disclosures on Anadarko's stock.¹¹⁵ **Appendix C** presents the data on the nine factors Mr. Steinholt used to test the market efficiency of Anadarko as applied to ConocoPhillips. Based on this data, Mr. Steinholt's methodology would have concluded that ConocoPhillips's common stock would have traded in an efficient market during the purported Class Period.

¹¹⁵ Mr. Steinholt acknowledged in deposition testimony that ConocoPhillips did not have a statistically significant price decline on May 3, 2017. Steinholt Dep. 16:3-23 ("Q. Right, but just sitting here today, do you know what the Conoco Philips [*sic*] stock price rection was on the day of the Anadarko corrective disclosure? ... A ... I don't think there was a statistically significant price decline on either of those two days ... when Conoco Philips [*sic*] announced their first quarter earnings or when Anadarko announced their first quarter earnings.").

58. I also reviewed analyst reports and news articles on Cobalt to identify firm-specific news that could have had a price impact on Cobalt's stock price on May 3, 2017.¹¹⁶ I found that leading up to the May 2, 2017 alleged corrective disclosures concerning Shenandoah, Cobalt was experiencing near-term liquidity constraints, was at risk of being delisted from the New York Stock Exchange, and its ability to continue as a going concern was in doubt.^{117, 118} Cobalt's most-recent Form 10-K filed March 14, 2017 contained a going concern opinion from Cobalt's auditor stating that "[t]he Company has near-term liquidity constraints that raises substantial doubt about its ability to continue as a going concern."¹¹⁹ Also on March 14, 2017, Cobalt announced plans to sell its 20% interest in Shenandoah and announced plans to open a virtual data room for such a purpose.¹²⁰ Following this disclosure, a Deutsche Bank analyst noted that the company was opening a "data room for Shenandoah...to address liquidity/funding concerns".¹²¹ On April 26, 2017, one week prior to the alleged corrective disclosures about Shenandoah on May 2, 2017, Cobalt restructured its debt, giving noteholders "about 50 cents on the dollar for their old notes," further demonstrating Cobalt's continued liquidity issues.¹²² On May 2, 2017, one day prior to the alleged corrective disclosure, Cobalt's stock price was trading at \$0.37 per share, which implies a market capitalization of \$167 million, or 1/189th of the size of Anadarko's \$31.4 billion market capitalization.¹²³

¹¹⁶ Cobalt had a 20% working interest at Shenandoah. Cobalt International Energy, Inc. Form 10-K, December 31, 2016 ("Cobalt 2016 Form 10-K") at p. 6.

¹¹⁷ Cobalt 2016 Form 10-K, at p. 55. In its 2016 Form 10-K, Cobalt also disclosed that it was out of compliance with the New York Stock Exchange's ("NYSE") minimum share price requirement because the average closing price of its common stock had fallen below \$1.00 per share over a period of 30 consecutive days, and therefore was at risk of being delisted from the NYSE.

¹¹⁸ While Cobalt may technically pass Mr. Steinholt's factors for market efficiency, it is also true that Cobalt was experiencing significant near term liquidity constraints, was at risk of being delisted from the New York Stock Exchange, and its ability continue as a going concern was in doubt.

¹¹⁹ Cobalt 2016 Form 10-K, at F-4.

¹²⁰ "Cobalt International Energy Plans to Sell 20% Interest In Shenandoah Oil Field, Offshore Gulf of Mexico," *Marketline*, March 14, 2017; Cobalt International Energy, Inc. FQ4 2016 Earnings Call Transcripts, March 14, 2017.

¹²¹ "Love the One You're With," Deutsche Bank, March 14, 2017, FIAM-ANAD-007658, at 7658.

¹²² "Cobalt International Energy Noteholders Take a Little for a Lot in Debt Exchange," *TheStreet.com*, April 26, 2017.

¹²³ ©2021 Center for Research in Security Prices (CRSP), The University of Chicago Booth School of Business.

59. I also found that Cobalt's issues worsened after the alleged May 2, 2017 corrective disclosures regarding Shenandoah. On May 3, 2017, Citi cut Cobalt's rating from neutral to sell noting that "APC's Shenandoah-6 appraisal results and choice to write-down investment will make it unlikely [Cobalt] will be able to execute any 'material' sale of its interest anytime soon."¹²⁴ A few days later, on May 8, 2017, Cobalt reported in its Form 10-Q: "In assessing whether there is substantial doubt about our ability to continue as a going concern, we prepared a detailed cash forecast that included all projected cash inflows and outflows as well as consideration of any cash related covenants associated with our financing structure. ... As this detailed cash flow forecast shows that our projected cash balance would be out of compliance with the minimum consolidated cash balance covenant within one year after the date these unaudited condensed consolidated financial statements are issued, we have concluded that there is substantial doubt about our ability to continue as a going concern."¹²⁵ Ultimately, Cobalt filed for Chapter 11 bankruptcy protection on December 14, 2017.¹²⁶

60. Given the above, Cobalt's stock price movement on May 3, 2017 is not reflective of the price impact of the alleged corrective disclosures concerning Shenandoah on Anadarko.

61. I also analyzed Anadarko and its partners' stock price movement on subsequent Shenandoah disclosures by ConocoPhillips (May 5, 2017) and Cobalt (May 8, 2017). After market close on May 4, 2017, ConocoPhillips updated its first-quarter 2017 earnings as a result of Anadarko's "decision to impair the carrying value of Shenandoah in the Gulf of Mexico."¹²⁷ ConocoPhillips recorded an additional pre-tax dry hole expense of \$242 million and a pre-tax expense of \$51 million for leasehold impairment.¹²⁸ However, on May 5, 2017, there was no statistically significant price change in the stock prices of Anadarko, ConocoPhillips, or Cobalt. See **Table 4**.

¹²⁴ "Cobalt Intl Cut at Citi as Anadarko Suspends Shenandoah Work," *Bloomberg*, May 3, 2017.

¹²⁵ Cobalt 1Q 2017 Form 10-Q, at p. 9.

¹²⁶ "Cobalt International Energy, Inc. Commences Chapter 11 Cases to Facilitate Restructuring," *Business Wire*, December 14, 2017 (6:00 AM).

¹²⁷ "ConocoPhillips Provides Update to First-Quarter 2017 Results Based on Subsequent Partner Disclosures and Information," *Business Wire*, May 4, 2017 (4:30 PM).

¹²⁸ "ConocoPhillips Provides Update to First-Quarter 2017 Results Based on Subsequent Partner Disclosures and Information," *Business Wire*, May 4, 2017 (4:30 PM).

Table 4
Stock Price Reaction of Anadarko, ConocoPhillips, and Cobalt on May 5, 2017

		Anadarko	ConocoPhillips	Cobalt
Raw Return	[A]	1.25%	1.85%	0.76%
Predicted Return ⁽¹⁾	[B]	2.72%	2.44%	4.46%
Abnormal Return	[C = A – B]	-1.47%	-0.59%	-3.70%
t-Statistic	[D]	-1.31	-0.53	-0.66
Statistically Significant? ⁽³⁾	[E]	No	No	No

Notes: (1) Ferrell Report Appendix D. (2) Statistical significance at the 5% level is denoted by a t-statistic with an absolute value of 1.96 or greater.

62. Before market open on May 8, 2017, Cobalt announced its first quarter 2017 financial results, including a net loss of \$306.3 million compared to a net loss of \$46.6 million one year earlier.¹²⁹ Cobalt explained that the “increase in net loss is mainly associated with the write off of Shenandoah well costs and increased interest expense related to Cobalt’s December 2016 and January 2017 debt exchanges.”¹³⁰ However, on May 8, 2017, there was no statistically significant price change in the stock prices of Anadarko, ConocoPhillips, and Cobalt. *See Table 5.*

Table 5
Stock Price Reaction of Anadarko, ConocoPhillips, and Cobalt on May 8, 2017

		Anadarko	ConocoPhillips	Cobalt
Raw Return	[A]	-0.53%	0.77%	-2.09%
Predicted Return ⁽¹⁾	[B]	1.23%	1.04%	1.72%
Abnormal Return	[C = A – B]	-1.76%	-0.27%	-3.81%
t-Statistic	[D]	-1.57	-0.25	-0.67
Statistically Significant? ⁽³⁾	[E]	No	No	No

Notes: (1) Ferrell Report Appendix D. (2) Statistical significance at the 5% level is denoted by a t-statistic with an absolute value of 1.96 or greater.

¹²⁹ “Cobalt International Energy, Inc. Announces First Quarter 2017 Results and Provides Operational Update,” *Business Wire*, May 8, 2017 (6:45 AM).

¹³⁰ “Cobalt International Energy, Inc. Announces First Quarter 2017 Results and Provides Operational Update,” *Business Wire*, May 8, 2017 (6:45 AM).

63. The above evidence is consistent with Anadarko's Shenandoah disclosures after market close on May 2, 2017 not having a price impact on Anadarko's stock price on May 3, 2017.

64. As discussed above, in addition to the Shenandoah disclosures, there was other news unrelated to Shenandoah that was disclosed contemporaneously. In particular, there was news linking an Anadarko well to a house explosion in Firestone, Colorado that was also disclosed after market close on May 2, 2017. Specifically, Frederick-Firestone Colorado fire officials disclosed that "[a]n explosion that killed two people... was caused by natural gas leaking from an abandoned line that remained attached to a nearby well owned by Anadarko"¹³¹ and Colorado's Governor "ordered inspections of all active and unused natural gas pipelines near occupied buildings."¹³² In his deposition testimony, Mr. Steinholt testified that the news related to the Colorado explosion was new information that Anadarko disclosed after market close on May 2, 2017.¹³³ As analyst reports and news articles explained, Anadarko's stock price on May 3, 2017 was negatively affected by news related to the Firestone, Colorado fire. For example:

- *Reuters* noted that "[s]hares of Anadarko Petroleum Corp fell as much as 9.4 percent, a day after the cause of a fatal Colorado home explosion was linked by local fire protection authorities to a nearby well operated by the oil and gas producer... [a]t least two brokerages cut their rating on Anadarko, following the agency's findings."¹³⁴
- *Bloomberg* reported: "Anadarko Petroleum Corp. tumbled the most in almost 16 months in New York trading, a day after Colorado officials linked one of the company's wells to a fatal house blast, opening questions on how the probe may play out."¹³⁵
- *Dow Jones* explained that "[s]hares of Anadarko Petroleum (APC) are tumbling this morning after releasing disappointing first-quarter earnings... but it's the potential

¹³¹ "Colorado Explosion in April Blamed on Leak Near Anadarko Well," *Dow Jones Institutional News*, May 2, 2017 (7:01 PM).

¹³² "The Latest: Colorado checks gas lines after fatal explosion," *The Associated Press*, May 2, 2017 (8:11 PM).

¹³³ Steinholt Dep. Tr. 42:17-43:2.

¹³⁴ "Anadarko shares fall after home explosion linked to company well," *Reuters News*, May 3, 2017 (10:30 AM).

¹³⁵ "Anadarko Shares Slide After Well Tied to Fatal Blast in Colorado," *Bloomberg News*, May 3, 2017 (11:09 AM).

overhang from a recent accident that appears to be spurring the massive selloff...[t]he findings of the Firestone investigation are a clear negative for Anadarko”¹³⁶

65. In addition, the price impact of the news related to the Firestone, Colorado fire on Anadarko stock is demonstrated by the price decline of the stocks of firms that were potentially impacted by the new Colorado mandate regarding flow integrity testing disclosed after market close on May 2, 2017.¹³⁷ A Wells Fargo report issued following the news related to the Firestone, Colorado fire downgraded Anadarko, together with SRC Energy and Extraction Oil & Gas, and also identified Noble Energy and PDC Energy as two other names with “meaningful DJ exposure.”¹³⁸ While the gas leak was linked to a well owned by Anadarko and Anadarko was the largest oil and gas producer in Colorado at the time,¹³⁹ as **Figure 1** shows, on May 3, 2017, the other four firms operating in Colorado had statistically significant negative abnormal returns ranging from -4.5% to -7.8%.^{140, 141}

¹³⁶ “Why Anadarko Petroleum is Crumbling – Barron’s Blog,” *Dow Jones Institutional News*, May 3, 2017 (10:04 AM).

¹³⁷ In his deposition, Mr. Steinholt indicated that “changes to the regulatory environment would not only impact Anadarko, it would impact all the companies doing business in Colorado.” See Steinholt Dep. Tr. 29:8-29:11.

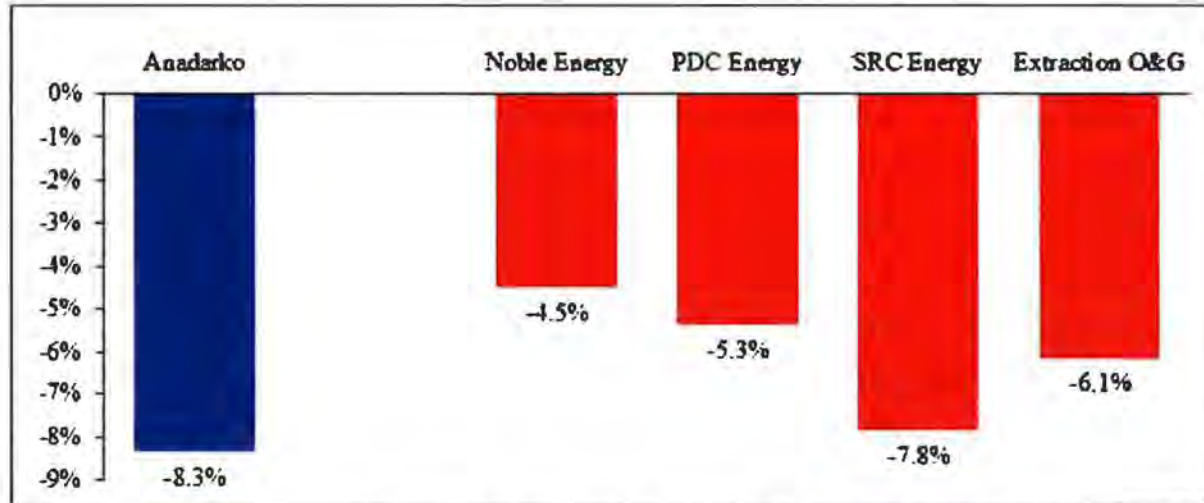
¹³⁸ “E&P: Downgrading APC, SRCI, And XOG,” Wells Fargo, May 2, 2017 (“We are downgrading shares of APC, SRCI, and XOG to Market Perform from Outperform. Our downgrade follows what we believe will be an overhang on APC and all DJ Basin players on the heels the preliminary findings regarding the tragic situation in Firestone, CO. Other names with meaningful DJ exposure include Market Perform rated Noble Energy (NBL) and PDC Energy (PDCE)”). In his deposition, Mr. Steinholt acknowledged that Noble “probably was impacted by the Firestone issue.” See Steinholt Dep. Tr. 28:8-28:10.

¹³⁹ “Colorado Explosion in April Blamed on Leak Near Anadarko Well,” *Dow Jones Institutional News*, May 2, 2017 (7:01 PM) (explaining that the gas leak came from “an abandoned line that remained attached to a nearby well owned by Anadarko”) & “APC Colorado Shut-ins,” Evercore ISI, April 27, 2017 (noting that Anadarko was “the largest oil and gas producer in Colorado”).

¹⁴⁰ The methodology for the Noble Energy, PDC Energy, SRC Energy, and Extraction Oil & Gas event studies are described in **Appendix D**. The event study results show Noble Energy had an abnormal return of -4.5% with a t-statistic of -3.86, PDC Energy had an abnormal return of -5.3% with a t-statistic of -3.57, SRC Energy had an abnormal return of -7.8% with a t-statistic of -3.93, and Extraction Oil & Gas had an abnormal return of -6.1% with a t-statistic of -3.09.

¹⁴¹ I searched the Factiva and Lexis News databases for articles with each company’s name in the headline or lead paragraph on May 2-3, 2017. Based on my review of these news articles, I did not find other (i.e., non-Colorado fire) new value-relevant news for these four firms on May 3, 2017 that could explain these four stocks’ price decline.

Figure 1
Anadarko and Other Colorado Operators
Abnormal Returns on May 3, 2017



Notes: The abnormal returns reported above are based on a regression of the company's return on the returns of the S&P 500 Index and the Modified Steinholt Peer Group Excluding Noble. Ferrell Report Appendix D.

66. Given the above, the news about the fire and explosion in Firestone, Colorado explains Anadarko's price decline on May 3, 2017.

67. Furthermore, Anadarko's production guidance, which is unrelated to Shenandoah, was also issued contemporaneously with the Shenandoah disclosures and was seen as disappointing by some analysts. In his deposition testimony, Mr. Steinholt testified that the guidance news was new information that Anadarko disclosed after market close on May 2, 2017.¹⁴² For example, a JPMorgan analyst stated that "we expect a mixed reaction to the print given the weaker Q217 guide owing to GoM shut-ins for well tie-ins and maintenance and lingering uncertainty associated with the home explosion incident in the DJ Basin."¹⁴³ Similarly, a UBS analyst stated that "[n]o change to 2017 guidance but 2Q volume guide a bit light vs. expectations."¹⁴⁴ In addition, a Barclays analyst stated the "[p]roduction guidance was left

¹⁴² Steinholt Dep. Tr. 42:17-42:24 ("Q: And what was the new information that Anadarko disclosed after the close of the market on May 2nd?" A: "... they provided guidance that was a little bit disappointing for the second quarter").

¹⁴³ "1Q17 Flash: Unfortunately, It's Déjà Vu All Over Again; Stock Reaction Mixed – ALERT," J.P. Morgan, May 2, 2017, FIAM-ANAD-009291, at 9291.

¹⁴⁴ "Large Exploration Expense Drives 1Q17 EPS/CFPS Miss but EBITDX Beats; Maintain 2017 Guidance," UBS, May 3, 2017.

largely unchanged, but 2Q oil volumes guidance was lower than expected.”¹⁴⁵ Thus, in addition to the news about the Firestone, Colorado fire, the price decline on May 3, 2017 was also affected by the soft production guidance disclosure.

VIII. The Economic Nature of the Disclosures

68. The lack of price impact of the alleged misstatements as well as the alleged corrective disclosures is consistent with the economic nature of the disclosures. There are three reasons why one would not expect a price impact in response to the alleged misstatements and alleged corrective disclosure. First, as discussed above, Anadarko was in the appraisal stage (i.e., not yet in the development stage) of the Shenandoah project. Shen-2 to Shen-6 were appraisal wells, which are wells drilled “to determine the physical extent, reserves and likely production rate of a field.”¹⁴⁶ It is understood that the risk of encountering a dry hole is non-trivial. The chance of success of an appraisal well depends on the probabilities of several risk elements and “if any of the elements fail then we have an unsuccessful appraisal well.”¹⁴⁷ The Shenandoah project was not immune to such risk. While Shen-2 discovered oil, Shen-3 was a dry hole.¹⁴⁸ Then, the next two appraisal wells (i.e., Shen-4 and Shen-5) had found oil, but Shen-6 was again a dry hole.¹⁴⁹

¹⁴⁵ “Results Overshadowed by a Colorado Home Explosion,” Barclays, May 4, 2017, AtSOS_00000656, at 0658.

¹⁴⁶ Colorado Oil and Gas Conservation Commission Glossary of Oil and Gas Terms, https://cogcc.state.co.us/COGIS_Help/glossary.htm (last accessed December 9, 2021).

¹⁴⁷ A. Fourn, “Risking Appraisal and Development Wells within Oil and Gas Fields,” July 16, 2018, <https://www.linkedin.com/pulse/risking-appraisal-development-wells-within-oil-gas-fields-alan-fourn/> (last accessed December 9, 2021). The risk elements mentioned in the article are SCV (structure, contact, and volume), reservoir presence, reservoir effectiveness, hydrocarbon charge, and trap effectiveness.

¹⁴⁸ “ConocoPhillips Announces Significant Oil Discovery in Deepwater Gulf of Mexico and Provides Program Update,” ConocoPhillips Press Release, March 19, 2013, <https://www.conocophillips.com/news-media/story/conocophillips-announces-significant-oil-discovery-in-deepwater-gulf-of-mexico-and-provides-program-update/> (last accessed December 9, 2021) (“ConocoPhillips (NYSE: COP) today announced a significant oil discovery from its recently drilled Shenandoah appraisal in the deepwater Gulf of Mexico.”); ConocoPhillips 4Q 2014 Earnings Call Transcript, January 29, 2015, at p. 13 (“... some dry hole costs related to the Shenandoah appraisal well that we wrote off as well”); “Morning Energy Summary,” Capital One, February 2, 2015 at p. 2 FIAM-ANAD-005012, at 5013 (“ConocoPhillips reported last Thurs that the 2nd appraisal well at Shenandoah was a dry hole.”).

¹⁴⁹ “Anadarko Announces Third-Quarter 2015 Results,” Anadarko Press Release, October 27, 2015, at pp. 1-2; “Anadarko Announces Second-Quarter 2016 Results,” Anadarko Press Release, July 26, 2016, at p.

69. Second, the riskiness of the Shenandoah project is evidenced by some analysts assigning a low to zero value to Shenandoah given its uncertainty. For example, in a report dated July 6, 2015, despite acknowledging that “Shenandoah could be one of the largest GOM [Gulf of Mexico] discoveries,” a Jefferies analyst opined that it gave “no credit” to Shenandoah in their “Risk-Adjusted Asset Value.”¹⁵⁰ Also, on April 12, 2016, a Wellington analyst noted: “So in the context of a futures curve, which underpins most M&A deals, the asset [Shenandoah] essentially has zero value. It’s all a question of how much option value a buyer wants to assign.”¹⁵¹ Similarly, on May 6, 2016, a JPMorgan analyst stated that, “[a]s a reminder, we do not give value for Shenandoah in our NAV [Net Asset Value] given uncertainty around the project.”¹⁵²

70. Third, throughout the purported Class Period, Anadarko disclosed and analysts acknowledged that, at the then-prevailing oil prices, Anadarko will not sanction (i.e., develop) Shenandoah. For example:

- On February 2, 2016, a Johnson Rice analyst stated: “Anadarko is continuing to have success with appraisal and delineation of the massive Shenandoah discovery in the Gulf of Mexico, but at the same time the company would not develop the resources at \$30 WTI, given the cost involved.”¹⁵³ Also, a UBS analyst stated “[Anadarko] will not develop or sanction Shenandoah in the deepwater GoM in a ~\$30/Bbl oil price environment.”¹⁵⁴

1: “ConocoPhillips Reports First-Quarter 2017 Results: On Track to Delivery 2017 Operating Plan and Accelerate Value Proposition,” ConocoPhillips Press Release, May 2, 2017 (7:00 AM) (“First-quarter earnings were negatively impacted by \$101 million of pre-tax dry hole expense, which includes the Shenandoah-6 well in the Gulf of Mexico.”).

¹⁵⁰ “Oil & Gas Exploration & Production Reduce Nat Gas Price Outlook, Remain Constructive: Upgrade APC, NBL, EOG,” Jefferies, July 6, 2015, JanHen_00035055, at 5055 (“While we believe Shenandoah could be one of the largest GOM discoveries, we currently give no credit in our RAAV [Risk-Adjusted Asset Value] due to needed improvements in drilling technology (new build drillships with dual 20k PSI BOPs), which are unlikely to be available in the near-term”).

¹⁵¹ Email from Mark Viviano at Wellington dated April 12, 2016 re “Marathon (MRO,1,\$8B): great WY sale but negative Shenandoah comp for APC/CIE, WMC-APC-0000317-321 at 0321.

¹⁵² “More Positives Than Negatives, But a Few Chinks in the Armor,” JP Morgan, May 4, 2016, JPMS 000280 at 0280.

¹⁵³ “Oil Volumes Flat in 2016, \$1B+ in Asset Sales Forthcoming,” Johnson Rice & Company, February 2, 2016, APC-01167444, at 7445.

¹⁵⁴ “Preliminary 2016 Volume Guidance More Resilient Than Expectations: Raising 2016-17 CFPS Estimates,” UBS February 2, 2016, UBS_0001020, at 1020.

- On April 12, 2016, a Wellington analyst (i.e., a buy-side analyst) noted: “The operator [Anadarko] is on record saying they wouldn’t sanction [Shenandoah] until oil was back in the \$70’s given where costs are today.”¹⁵⁵
- On July 28, 2016, a Simmons & Company analyst noted that “[Final Investment Decision] is not imminent. APC has much more appraisal work ahead and wants to drive project costs lower to enhance well economics.”¹⁵⁶
- On September 8, 2016, a Simmons & Company analyst stated “APC remains very optimistic about the long-term potential for Shenandoah. However, they are not going to sanction this project at current oil prices.”¹⁵⁷
- On March 3, 2017, a Morgan Stanley analyst stated that “[s]anction during 2017 remains unlikely given technically challenging Lower Tertiary project likely requires >\$60/bbl crude to be viable.”¹⁵⁸
- On March 24, 2017, Goldman Sachs analysts reported that “[Anadarko] indicated that major Gulf of Mexico greenfield projects like Shenandoah (our target assumes \$1/shr) is unlikely to get final approval in a \$50-\$55 per bbl environment.”¹⁵⁹

71. As **Figure 2** shows, oil prices never reached \$70 per barrel during the purported Class Period and did not exceed \$60 per barrel beginning June 25, 2015 (i.e., approximately four months after the start of the purported Class Period) through the end of the purported Class Period. In other words, the then-prevailing oil prices throughout the purported Class Period were not at a level that would have made the Shenandoah project economically viable when the alleged misstatements and the alleged corrective disclosure were made. Therefore, this is consistent with Anadarko’s decision to suspend appraisal activity at Shenandoah not having a price impact.

¹⁵⁵ Email from Mark Viviano at Wellington dated April 12, 2016 re “Marathon (MRO.1,\$8B): great WY sale but negative Shenandoah comp for APC/CIE, WMC-APC-0000317-321 at 0321.

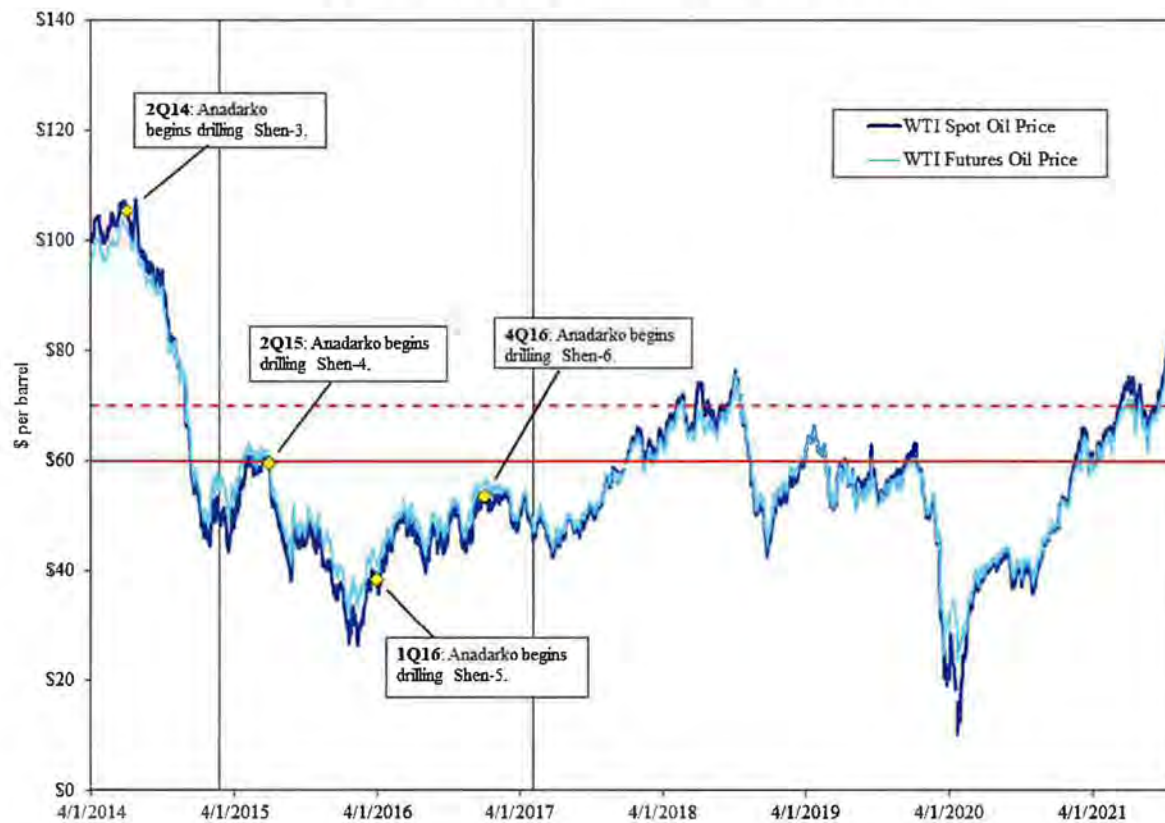
¹⁵⁶ “Q2’16 Earnings Review: Improving Balance Sheet Through Divestitures,” Simmons & Company, July 28, 2016, PIPER_SANDLER-0003791 at 3791.

¹⁵⁷ “Q3’16 Update: Attractive Valuation – Waiting on Catalysts,” Simmons & Company, September 8, 2016, PIPER_SANDLER-0003797, at 3798.

¹⁵⁸ “1Q17: Headwinds Accumulate; Move to EW,” Morgan Stanley, May 3, 2017, MS_ANADARKO_000216 at 0222.

¹⁵⁹ “Mgmt meeting highlights focus on E&P/midstream growth; Buy,” Goldman Sachs, March 24, 2017, at 1, FIAM-ANAD-009176 at 09176.

Figure 2
WTI Oil Prices per Barrel: 2Q 2014 – 3Q 2021



Notes: (1) The vertical lines denote the beginning and end of the purported Class Period. (2) The red lines denote the \$60 and \$70 per barrel prices. Source: Bloomberg L.P.

72. By comparison, the recent level of oil prices (*see Figure 2*) has made the Shenandoah project economically viable, which is consistent with Shenandoah's current operator, Beacon Offshore Energy, announcing its decision to develop Shenandoah on August 25, 2021.¹⁶⁰ As an S&P Global Platts report dated July 26, 2021 explained, "[o]ther large US Gulf projects that could be set for a final investment decision in the near-term include ... Beacon Energy Offshore's Shenandoah ... Offshore appears to be ticking up as current oil prices in the

¹⁶⁰ "Beacon Offshore's Status Projected to Rise Following Shenandoah Project FID," Hart Energy, August 26, 2021, <https://www.hartenergy.com/exclusives/beacon-offshores-status-projected-rise-following-shenandoah-project-fid-195917> (last accessed December 9, 2021).

\$70s/b, couple with growing confidence that more oil will be needed even after newly raised production levels of OPEC+ are eased into the market during the second-half 2021.”¹⁶¹

IX. Mr. Steinholt’s Statements Regarding His Ability To Calculate Class-Wide Damages In This Case

73. I have also been asked by counsel for Defendants to consider Mr. Steinholt’s statements regarding his ability to calculate class-wide damages in this case that is consistent with Plaintiffs’ theory of liability. I understand that under *Comcast v. Behrend*, 133 S.Ct. 1426 (2013), Plaintiffs must establish that damages are capable of measurement on a class-wide basis, in a manner that is consistent with Plaintiffs’ theory of liability. In his report, Mr. Steinholt opines that “class-wide damages can be calculated in this case using the event-study damages framework”.¹⁶² Mr. Steinholt has stated that he will use the same approach (his “event-study damages framework”) to damages regardless of whether the theory of liability is a (i) materialization of an undisclosed risk or (ii) the company knew from the outset that Shenandoah was not viable (i.e., the risk of failure was a certainty).¹⁶³ Indeed, Mr. Steinholt testified that it was irrelevant for him to know what Plaintiff’s theory of liability is.¹⁶⁴ How his “event study damages framework” applies to two very different theories concerning what constitutes corrective information (information concerning the undisclosed risk of failure versus information that the project was going to fail with certainty) is left entirely unexplained.

Dated: December 10, 2021



Allen Ferrell

¹⁶¹ “Shell greenlights development of US Gulf of Mexico Whale field,” S&P Global Platts, July 26, 2021.

¹⁶² Steinholt Report, ¶ 10.

¹⁶³ Steinholt Dep. Tr. 60:11-63:15.

¹⁶⁴ Steinholt Dep. Tr. 69:8-17.

Appendix A

December, 2021

Allen Ferrell

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CURRENT POSITIONS

Greenfield Professor of Securities Law, Harvard Law School

Visiting Professor, Stanford Law School

National Bureau of Economic Research, Research Associate

Member of Editorial Board, Journal of Financial Perspectives

Fellow, Columbia University's Program on the Law and Economics of Capital Markets

Faculty Associate, Kennedy School of Government

Research Associate, European Corporate Governance Institute

EDUCATION

Massachusetts Institute of Technology, Ph.D. in Economics, 2005
Fields in econometrics and finance

Harvard Law School, J.D., 1995, *Magna Cum Laude*

- Recipient of the *Sears Prize* (award given to the two students with the highest grades)
- Editor, *Harvard Law Review*

Brown University, B.A. and M.A., 1992, *Magna Cum Laude*

PREVIOUS POSITIONS

Harvard University Fellow
Harvard Law School, 1997

Law Clerk, Justice Anthony M. Kennedy
Supreme Court of the United States; 1996 Term

Law Clerk, Honorable Laurence H. Silberman
United States Court of Appeals for the District of Columbia; 1995 Term

COURSES TAUGHT

Contracts
Corporate Finance
Law and Finance
Securities Litigation & Regulation

REFEREE FOR FOLLOWING JOURNALS

American Law and Economics Review
Journal of Corporation Finance
Journal of Finance
Journal of Financial Perspectives
Journal of Law and Economics
Journal of Law, Economics and Organization
Journal of Legal Studies
Quarterly Journal of Economics

CONSULTING AREAS

Price Impact and Securities Damages, Valuation, Mergers & Acquisitions

Papers

“Are Star Law Firms Better Law Firms?” with Manconi, Neretina, Powley & Renneboog, Working Paper (2021)

“How Accurate are Matrix Bond Prices?” with Drew Roper & Yibai Shu, Working Paper (2018)

“New Special Study of the Securities Markets: Intermediaries” with John Morley in SECURITIES MARKET ISSUES FOR THE 21ST CENTURY (2018) (editors Fox, Glosten, Greene and Patel)

“Socially Responsible Firms,” with Hao Liang and Luc Renneboog, 122 *Journal of Financial Economics* 586-606 (2016) (winner of Moskowitz Prize for outstanding quantitative research)

“Price Impact, Materiality, and *Halliburton II*” with Drew Roper, 93 *Washington University Law Review* 553 (2016)

“Introducing the CFGM Corporate Governance Database: Variable Construction and Comparison” with Cremers, Gompers and Andrew Metrick, Working Paper

“The Benefits and Costs of Indices in Empirical Corporate Governance Research,” in OXFORD HANDBOOK ON CORPORATE LAW AND GOVERNANCE (2016)

“Thirty Years of Shareholder Rights and Stock Returns,” with Martijn Cremers, *revise and resubmit Journal of Financial Economics*

“Thirty Years of Shareholder Rights and Firm Valuation,” with Martijn Cremers, 69 *Journal of Finance* 1167 (2014)

“Rethinking *Basic*,” with Lucian Bebchuk, 69 *Business Lawyer* 671 (2014)

“Calculating Damages in ERISA Litigation,” with Atanu Saha, 1 *Journal of Financial Perspectives* 93 (2013)

“Forward-casting 10b-5 Damages: A Comparison to other Methods”, with Atanu Saha, 37 *Journal of Corporation Law* 365 (2011)

“Event Study Analysis: Correctly Measuring the Dollar Impact of an Event” with Atanu Saha, Working Paper (2011)

“Legal and Economic Issues in Litigation arising from the 2007-2008 Credit Crisis,” with Jennifer Bethel and Gang Hu, in *PRUDENT LENDING RESTORED: SECURITIZATION AFTER THE MORTGAGE MELTDOWN* (2009)

“Securities Litigation and the Housing Market Downturn,” with Atanu Saha, 35 *Journal of Corporation Law* 97 (2009)

“The Supreme Court’s 2005-2008 Securities Law Trio: *Dura Pharmaceuticals*, *Tellabs*, and *Stoneridge*,” 9 *Engage* 32 (2009)

“What Matters in Corporate Governance?” with Lucian Bebchuk & Alma Cohen, 22 *Review of Financial Studies* 783 (2009)

“Do Exchanges, CCPs, and CSDs have Market Power?,” in *GOVERNANCE OF FINANCIAL MARKET INFRASTRUCTURE INSTITUTIONS* (Ruben Lee) (2009)

“An Asymmetric Payoff-Based Explanation of IPO ‘Underpricing’,” Working Paper, with Atanu Saha (2008)

“The Law and Finance of Broker-Dealer Mark-Ups,” commissioned study for NASD using proprietary database (2008)

“Majority Voting” in *REPORT OF THE COMMITTEE ON CAPITAL MARKETS REGULATION* (2008)

“The Loss Causation Requirement for Rule 10B-5 Causes of Action: The Implications of *Dura Pharmaceuticals v. Broudo*,” with Atanu Saha, 63 *BUSINESS LAWYER* 163 (2007)

“Mandated Disclosure and Stock Returns: Evidence from the Over-the-Counter Market,” 36 *Journal of Legal Studies* 1 (June, 2007)

“Policy Issues Raised by Structured Products,” with Jennifer Bethel, in *BROOKINGS –NOMURA PAPERS IN FINANCIAL SERVICES* (2007)

"The Case for Mandatory Disclosure in Securities Regulation around the World," 2 *Brooklyn Journal of Business Law* 81 (2007)

"U.S. Securities Regulation in a World of Global Exchanges," with Reena Aggarwal and Jonathan Katz, in *EXCHANGES: CHALLENGES AND IMPLICATIONS* (2007)

"Shareholder Rights" in *REPORT OF THE COMMITTEE ON CAPITAL MARKETS REGULATION* (2007)

"Creditor Rights: A U.S. Perspective," 22 *Angler- und Glaubigerschutz bei Handelsgesellschaften* 49 (2006)

"Measuring the Effects of Mandated Disclosure," 1 *Berkeley Business Law Journal* 369 (2004)

"If We Understand the Mechanisms, Why Don't We Understand the Output?," 37 *Journal of Corporation Law* 503 (2003)

"Why European Takeover Law Matters," in *REFORMING COMPANY AND TAKEOVER LAW IN EUROPE* (2003)

"Does the Evidence Favor State Competition in Corporate Law?," with Alma Cohen & Lucian Bebchuk, 90 *California L. Rev.* 1775 (2002)

"Corporate Charitable Giving," with Victor Brudney, 69 *Univ. Of Chicago Law Review* 1191 (2002)

"A Comment on Electronic versus Floor-Based Securities Trading," *Journal of Institutional and Theoretical Economics* (Spring 2002)

"Much Ado About Order Flow," *Regulation Magazine* (Spring 2002)

"On Takeover Law and Regulatory Competition," with Lucian Bebchuk, 57 *Business Lawyer* 1047 (2002)

"Federal Intervention to Enhance Shareholder Choice," with Lucian Bebchuk, 87 *Virginia Law Review* 993 (2001)

"A New Approach to Regulatory Competition in Takeover Law," with Lucian Bebchuk, 87 *Virginia Law Review* 111 (2001)

"A Proposal for Solving the 'Payment for Order Flow' Problem," 74 *Southern California Law Review* 1027 (2001)

"Federalism and Takeover Law: The Race to Protect Managers from Takeovers," with Lucian Bebchuk, 99 *Columbia L. Rev.* 1168 (1999)

TESTIMONY LAST FOUR YEARS

EIG Energy Fund v. Keppel Offshore & Marine LTD, Case No.18-cv-01047-PGG, Expert report and deposition on December 9, 2021

Purple Mountain Trust v. Wells Fargo et al., Case No. 3:18-cv-03948-JD, Expert report and deposition on December 3, 2021

In re Robinhood Litigation, Case No. Case No. 3:20-cv-01626-JD, Expert reports and deposition on September 30, 2021

In re P3 Health Group Holdings, LLC, Case No. 2021-0518-JTL, Expert report and deposition on August 26, 2021

Securitized Asset Funding 2011-2 v. CIBC, Case Index No. 653911/2015, Expert report and deposition on July 30, 2021

Pearlstein et al. v. Blackberry Limited, Case No. 1:13-cv-7060-CM, Expert report and deposition on November 3, 2020

In re Grupo Televisa Securities Litigation, Case No. 1:18-cv-01979-LLS, Expert report and deposition on February 21, 2020

In re Snap Securities Litigation, Case No. 2:17-cv-03679-SVW-AGR, Expert report and deposition on December 16, 2019

People of the State of New York v. Exxon Mobil Corporation, Index No. 452044/2018, Expert report and deposition on July 23, 2019 and trial testimony on November 6, 2019

In re Signet Jewelers Limited Securities Litigation, Case No. 1:16-cv-06728-CM, Expert report and deposition on May 14, 2019

Trustees of DALI et al. v. Barrick Gold Corporation, Case No. CV-14-502316-00CP, Ontario Superior Court of Justice, Expert reports and deposition on April 16, 2019

Ramirez v. Exxon Mobil Corporation et al., Case No. 3:16-cv-031110K, Expert report and deposition on March 22, 2019

CC IMA v. IMA Pizza, JAMS Ref No. 1425026556, Testimony on September 13, 2018

Bradley Cooper v. Thoratec Corporation et al., Case No. 4:14-cv-00360-CW, Expert report and deposition on April 11, 2018

Blattman v. C3, Inc. et al., Case No. 1:15-cv-00530-GMS, Expert report and deposition on December 22, 2017

United States v. Kaleil Tuzman, 15 Criminal Case No. 536 (US Attorney for the Southern District of New York), testimony on December 15 and 18, 2017

Appendix B

Materials Relied Upon

Case Related Documents

1. Amended Complaint for Violations of The Federal Securities Laws, No. 4:20-vc-00576, U.S. District Court, Southern District of Texas, Houston Division, filed August 17, 2020
2. WMC-APC-0000317

Expert Report and Deposition

1. Expert Report and Exhibits of Bjorn I. Steinholt, CFA, October 1, 2021
2. Deposition of Bjorn Steinholt, November 17, 2021

Securities and Exchange Commission Filings

1. Anadarko Petroleum Corporation, Form 10-K, December 31, 2013
2. Anadarko Petroleum Corporation, Form 10-K, December 31, 2014
3. Anadarko Petroleum Corporation, Form 10-K, December 31, 2015
4. Anadarko Petroleum Corporation, Form 10-K, December 31, 2016
5. Anadarko Petroleum Corporation, Form S-3, August 12, 2016
6. Anadarko Petroleum Corporation, Form 10-Q, March 31, 2017
7. ConocoPhillips, Form 10-K, December 31, 2014
8. ConocoPhillips, Form S-3, May 13, 2015
9. ConocoPhillips, Form 10-K, December 31, 2016
10. Cobalt International Energy, Inc. Form S-3, December 22, 2016
11. Cobalt International Energy, Inc. Form 10-K, December 31, 2016
12. Cobalt International Energy, Inc., Form 10-Q, March 31, 2017
13. Extraction Oil & Gas, Form S-3, May 14, 2018
14. Noble Energy, Form S-3, February 17, 2016
15. PDC Energy, Form S-3, March 18, 2015
16. SRC Energy, Form S-3, September 11, 2015

Academic Literature, Regulatory, and Practitioner Publications

1. B. Black, and R. Gilson, 1995, *The Law and Finance of Corporate Acquisitions*, The Foundation Press, Inc.
2. R. Brealey, S. Myers, C. Stewart, and F. Allen, *Principles of Corporate Finance*. New York: McGraw-Hill/Irwin, 2003
3. R. Brealey, S. Myers, and A. Marcus, 2004, *Fundamentals of Corporate Finance*
4. J. Busse and T.C. Green, 2002, "Market Efficiency in Real Time," *Journal of Financial Economics*. Vol. 65, 415-437

5. Černý, 2004, "Stock Market Integration and the Speed of Information Transition," Working Papers Series – Charles University, 1-25
6. Corrado, 2011, "Event Studies: A methodology review," *Accounting and Finance*, Vol. 51, 209-211
7. L. Ederington, and J.H. Lee, 1995, "The Short-Run Dynamics of the Price Adjustment to New Information," *Journal of Financial and Quantitative Analysis*, Vol. 30, 117-134
8. E. Elton, M. Gruber, S. Brown, and W. Goetzmann, 2003, *Modern Portfolio Theory and Investment Analysis*, John Wiley & Sons
9. Federal Judicial Center, *Reference Manual on Scientific Evidence* (National Academies Press, 2011)
10. Ferrell and A. Saha, 2007, "The Loss Causation Requirement for Rule 10b-5 Causes-of-Action: The Implication of *Dura Pharmaceuticals v. Broudo*," *The Business Lawyer*, Vol. 63, 163-186
11. C. Jones, 2013, *Investments: Analysis and Management*. John Wiley & Sons
12. S.P. Kothari, 2001, "Capital Markets Research in Accounting," *Journal of Accounting and Economics*, 105-231
13. G.W. Schwert, 1981, "Using Financial Data to Measure Effects of Regulation," *Journal of Law and Economics*, Vol. 24, 129-135.
14. N. Visaltanachoti and T. Yang, 2010, "Speed of Convergence to Market Efficiency for NYSE-listed Foreign Stocks," *Journal of Banking and Finances*, Vol. 34, 594-605
15. R. Weil, et al., 2007, *Litigation Services Handbook: The Role of the Financial Expert*, John Wiley & Sons, Inc.
16. J. Wooldridge, 2013, *Introductory Econometrics: A Modern Approach*, Cengage Learning

News Articles, Press Releases and Conference Call Transcripts

1. "Anadarko Announces Another Deepwater Gulf of Mexico Discovery," *Business Wire*, February 4, 2009 (7:28 AM)
2. "Cobalt International Energy, Inc. Announces Second Quarter 2012 Results and Successful Cameia #2 Appraisal Well Offshore Angola," *Business Wire*, July 31, 2012
3. "ConocoPhillips Announces Significant Oil Discovery in Deepwater Gulf of Mexico and Provides Program Update," ConocoPhillips Press Release, March 19, 2013
4. ConocoPhillips 4Q 2014 Earnings Call Transcript, January 29, 2015
5. "Anadarko Announces Second-Quarter 2015 Results," *PR Newswire*, July 28, 2015 (4:05 PM)
6. "Anadarko jumps after earnings surprise," *Financial Times*, July 29, 2015 (2:05 PM)
7. "Anadarko Announces Third-Quarter 2015 Results," Anadarko Press Release, October 27, 2015
8. Anadarko Petroleum 3Q 2015 Earnings Call Transcript, October 28, 2015
9. "Anadarko Petroleum (APC) Stock Pops in After-Hours Trading on Improving Quarterly Earnings," *The Street.com*, February 1, 2016 (4:30 PM)

10. "UPDATE 1-Anadarko says it may cut dividend due to high yield," *Reuters News*, February 2, 2016 (2:21 PM)
11. Anadarko Petroleum Corporation, Company Conference Presentation, February 24, 2016
12. "Anadarko Petroleum (APC) Stock Surges, Slashes Capital Budget by Half," *TheStreet.com*, March 1, 2016 (1:16 PM)
13. "Investors Are Bullish On Anadarko Petroleum Following 2016 Capital Program," *Benzinga*, March 1, 2016 (7:53 PM)
14. "Anadarko Announces Second-Quarter 2016 Results," Anadarko Press Release, July 26, 2016
15. "Extraction Oil & Gas, Inc. Prices Initial Public Offering," *GlobalNewswire*, October 11, 2016
16. "Cobalt International Energy Plans to Sell 20% Interest In Shenandoah Oil Field, Offshore Gulf of Mexico," *Marketline*, March 14, 2017
17. "*Anadarko Pete 1Q Loss/Shr 58c > APC," Dow Jones Institutional News, May 2, 2017 (4:16 PM)
18. "Cobalt International Energy Noteholders Take a Little for a Lot in Debt Exchange," *TheStreet*, April 26, 2017
19. "ConocoPhillips Reports First-Quarter 2017 Results; On Track to Delivery 2017 Operating Plan and Accelerate Value Proposition," ConocoPhillips Press Release May 2, 2017 (7:00 AM)
20. "Anadarko Announces First-Quarter 2017 Results," Anadarko Press Release, May 2, 2017 (4:16 PM)
21. "Deadly Firestone explosion caused by odorless gas leaking from cut gas flow pipeline," *Denver Post*, May 2, 2017 (4:51 PM)
22. "Anadarko Issues Statement Regarding Firestone Accident," Anadarko Press Release, May 2, 2017 (5:18 PM)
23. "Colorado Explosion in April Blamed on Leak Near Anadarko Well," *Dow Jones Institutional News*, May 2, 2017 (7:01 PM)
24. "The Latest: Colorado checks gas lines after fatal explosion," *The Associated Press*, May 2, 2017 (8:11 PM)
25. "Why Anadarko Petroleum is Crumbling – Barron's Blog," *Dow Jones Institutional News*, May 3, 2017 (10:04 AM)
26. "Anadarko shares fall after home explosion linked to company well," *Reuters News*, May 3, 2017 (10:30 AM)
27. "Anadarko Shares Slide After Well Tied to Fatal Blast in Colorado," *Bloomberg News*, May 3, 2017 (11:09 AM)
28. "Cobalt Intl Cut at Citi as Anadarko Suspends Shenandoah Work," *Bloomberg*, May 3, 2017
29. "ConocoPhillips Provides Update to First-Quarter 2017 Results Based on Subsequent Partner Disclosures and Information," *Business Wire*, May 4, 2017 (4:30 PM)
30. "Cobalt International Energy, Inc. Announces First Quarter 2017 Results and Provides Operational Update," *Business Wire*, May 8, 2017 (6:45 AM)

31. "Cobalt International Energy, Inc. Commences Chapter 11 Cases to Facilitate Restructuring," *Business Wire*, December 14, 2017 (6:00 AM)
32. A. Fourn, "Risking Appraisal and Development Wells within Oil and Gas Fields," July 16, 2018, <https://www.linkedin.com/pulse/risking-appraisal-development-wells-within-oil-gas-fields-alan-fourn/>
33. "Back-to-basics: A guide to the different types of wells used by oil & gas companies," September 11, 2019, <https://www.valuethemarkets.com/analysis/back-to-basics-a-guide-to-the-different-types-of-wells-used-by-oil-gas-companies>

Documents Relied on for Table 1

1. Anadarko Petroleum Corporation Form 10-K, December 31, 2014, Timestamp per <https://www.sec.gov/Archives/edgar/data/773910/000077391015000012/0000773910-15-000012-index.htm>.
2. "Anadarko Announces 2015 Capital Program And Guidance," *PR Newswire*, March 3, 2015 (8:50 AM).
3. Anadarko Petroleum Corporation, Guidance/Update Call, March 03, 2015 (9:00AM).
4. Anadarko Petroleum Corporation Form 10-Q, March 31, 2015, Timestamp per <https://www.sec.gov/Archives/edgar/data/773910/000077391015000023/0000773910-15-000023-index.htm>.
5. Anadarko Petroleum Corporation, FQ1 2015 Earnings Call Transcripts, May 05, 2015 (9:00 AM).
6. Anadarko Petroleum Corporation, Company Conference Presentation, May 20, 2015 (9:30 AM).
7. "Anadarko Announces Second-Quarter 2015 Results," *PR Newswire*, July 28, 2015 (4:05 PM).
8. Anadarko Petroleum Corporation, FQ2 2015 Earnings Call Transcripts, July 29, 2015 (9:00 AM).
9. "Anadarko Announces Third-Quarter 2015 Results," *PR Newswire*, October 27, 2015 (4:05 PM).
10. Anadarko Petroleum Corporation, FQ3 2015 Earnings Call Transcripts, October 28, 2015 (9:00 AM).
11. "2015.11.11 Anadarko Presentation Jefferies Energy Conference," *Bloomberg Transcripts*, November 11, 2015 (10:18 AM).
12. Anadarko Petroleum Corporation, FQ4 2015 Earnings Call Transcripts, February 02, 2016 (9:00 AM).
13. Anadarko Petroleum Corporation Form 10-K, December 31, 2015, accessed at <https://www.sec.gov/Archives/edgar/data/773910/000077391016000073/0000773910-16-000073-index.htm>.
14. Anadarko Petroleum Corporation, Company Conference Presentation, February 24, 2016 (10:40 AM).

15. "Anadarko Announces 2016 Capital Program And Guidance," *PR Newswire*, March 1, 2016 (08:50 AM).
16. Anadarko Petroleum Corporation, FQ1 2016 Earnings Call Transcripts, May 03, 2016 (9:00 AM).
17. Anadarko Petroleum Corporation, Company Conference Presentation, May 11, 2016 (9:00 AM).
18. Anadarko Petroleum Corporation, Company Conference Presentation, May 24, 2016 (1:55 PM).
19. Anadarko Petroleum Corporation, Company Conference Presentation, June 28, 2016 (9:40 PM).
20. Anadarko Petroleum Corporation Form 10-Q, June 30, 2016, Timestamp per <https://www.sec.gov/Archives/edgar/data/773910/000077391016000116/0000773910-16-000116-index.htm>.
21. "Anadarko Announces Second-Quarter 2016 Results," *PR Newswire*, July 26, 2016 (4:05 PM).
22. Anadarko Petroleum Corporation, FQ2 2016 Earnings Call Transcripts, July 27, 2016. (9:00 AM)
23. Thomson Reuters Streetevents, EDITED TRANSCRIPT APC - Anadarko Petroleum Corp at EnerCom Oil & Gas Conference, August 16, 2016 (4:45 PM).
24. Anadarko Petroleum Corporation, Company Conference Presentation, September 14, 2016 (12:00 PM).
25. Anadarko Petroleum Corporation, FQ3 2016 Earnings Call Transcripts, November 01, 2016 (9:00 AM).
26. Anadarko Petroleum Corporation, FQ4 2016 Earnings Call Transcripts, February 01, 2017 (9:00 AM).
27. Anadarko Petroleum Corporation Form 10-K, December 31, 2016, Timestamp per <https://www.sec.gov/Archives/edgar/data/773910/000077391017000020/0000773910-17-000020-index.htm>.

Data Sources and Websites

1. Bloomberg
2. ©2021 Center for Research in Security Prices (CRSP), The University of Chicago Booth School of Business
3. Capital IQ
4. Eikon
5. FactSet
6. Lexis News
7. Refinitiv
8. www.sec.gov
9. Colorado Oil and Gas Conservation Commission Glossary of Oil and Gas Terms, https://cogcc.state.co.us/COGIS_Help/glossary.htm

10. Hart Energy, "Beacon Offshore's Status Projected to Rise Following Shenandoah Project FID," August 26, 2021, <https://www.hartenergy.com/exclusives/beacon-offshores-status-projected-rise-following-shenandoah-project-fid-195917>
11. Schlumberger Oilfield Glossary, https://glossary.oilfield.slb.com/en/Terms/d/dry_hole.aspx

Analyst Reports (Non-Anadarko Reports)

1. Capital One, Morning Energy Summary, February 2, 2015
2. "Oil & Gas Exploration & Production Reduce Nat Gas Price Outlook, Remain Constructive; Upgrade APC, NBL, EOG," Jefferies, July 6, 2015
3. "APC: '16 Guidance and Investor Call Recap," Capital One Securities, March 1, 2016
4. "Love the One You're With," Deutsche Bank, March 14, 2017
5. Wells Fargo, "E&P: Downgrading APC, SRCI, And XOG," May 2, 2017
6. S&P Global Platts, "Shell greenlights development of US Gulf of Mexico Whale field," July 26, 2021

Anadarko Analyst Reports

1. Jefferies, February 23, 2015
2. Simmons, February 24, 2015
3. UBS, February 24, 2015
4. RBC, March 02, 2015
5. Wolfe, March 02, 2015
6. Barclays, March 03, 2015
7. Bernstein, March 03, 2015
8. Goldman Sachs, March 03, 2015
9. Morgan Stanley, March 03, 2015
10. Piper Sandler, March 03, 2015
11. Simmons, March 03, 2015
12. Societe Generale, March 03, 2015
13. UBS, March 03, 2015
14. Barclays, March 04, 2015
15. Capital One, March 04, 2015
16. GMP, March 04, 2015
17. Guggenheim, March 04, 2015
18. Piper Sandler, March 04, 2015
19. Raymond James, March 04, 2015
20. Seaport, March 04, 2015
21. Simmons, March 04, 2015
22. Stifel, March 04, 2015
23. Wells Fargo, March 04, 2015

24. Wolfe, March 04, 2015
25. Johnson Rice, March 05, 2015
26. RBC, March 05, 2015
27. Macquarie, March 06, 2015
28. Morningstar, March 06, 2015
29. Oppenheimer, March 06, 2015
30. KLR Group, March 09, 2015
31. Oppenheimer, March 09, 2015
32. Morningstar, March 12, 2015
33. Goldman Sachs, March 13, 2015
34. Morningstar, March 13, 2015
35. Oppenheimer, March 13, 2015
36. Argus, March 16, 2015
37. Seaport, March 17, 2015
38. Deutsche Bank, March 18, 2015
39. Morningstar, March 18, 2015
40. Simmons, March 18, 2015
41. Oppenheimer, March 20, 2015
42. Credit Suisse, March 25, 2015
43. Credit Suisse (2), March 25, 2015
44. Capital One, March 26, 2015
45. Capital One (2), March 26, 2015
46. Oppenheimer, March 27, 2015
47. Piper Sandler, March 30, 2015
48. Simmons, March 30, 2015
49. RBC, April 01, 2015
50. Seaport, April 01, 2015
51. Seaport (2), April 01, 2015
52. Oppenheimer, April 07, 2015
53. Seaport, April 07, 2015
54. Credit Suisse, April 08, 2015
55. Guggenheim, April 08, 2015
56. Imperial Capital, April 09, 2015
57. RBC, April 09, 2015
58. Capital One, April 10, 2015
59. Oppenheimer, April 10, 2015
60. Anadarko, April 17, 2015
61. BofA, April 17, 2015
62. CFRA Equity, April 17, 2015
63. RBC, April 17, 2015
64. Capital One, April 20, 2015
65. Capital One (2), April 20, 2015
66. Credit Suisse, April 20, 2015

67. Nomura, April 21, 2015
68. Wells Fargo, April 21, 2015
69. Barclays, April 23, 2015
70. Wells Fargo, April 23, 2015
71. Jefferies, April 24, 2015
72. Oppenheimer, April 26, 2015
73. Cowen, April 27, 2015
74. Cowen (2), April 27, 2015
75. Seaport, April 28, 2015
76. RBC, May 01, 2015
77. Barclays, May 04, 2015
78. Guggenheim, May 04, 2015
79. Jefferies, May 04, 2015
80. JPMorgan, May 04, 2015
81. Morgan Stanley, May 04, 2015
82. Piper Sandler, May 04, 2015
83. RBC, May 04, 2015
84. Simmons, May 04, 2015
85. Wells Fargo, May 04, 2015
86. Atlantic, May 05, 2015
87. BMO Capital Markets, May 05, 2015
88. BoA, May 05, 2015
89. Capital One, May 05, 2015
90. Capital One (2), May 05, 2015
91. CFRA Equity, May 05, 2015
92. Cowen, May 05, 2015
93. Credit Suisse, May 05, 2015
94. Deutsche Bank, May 05, 2015
95. GMP, May 05, 2015
96. Goldman Sachs, May 05, 2015
97. Oppenheimer, May 05, 2015
98. Raymond James, May 05, 2015
99. Scotiabank, May 05, 2015
100. Seaport, May 05, 2015
101. Simmons, May 05, 2015
102. Societe Generale, May 05, 2015
103. Stifel, May 05, 2015
104. UBS, May 05, 2015
105. Wells Fargo, May 05, 2015
106. Wolfe, May 05, 2015
107. Capital One, May 06, 2015
108. Johnson Rice, May 06, 2015
109. RBC, May 06, 2015

110. Barclays, May 07, 2015
111. Oppenheimer, May 15, 2015
112. Capital One, May 18, 2015
113. Simmons, May 18, 2015
114. Simmons (2), May 18, 2015
115. Seaport, May 19, 2015
116. Wolfe, May 19, 2015
117. UBS, May 20, 2015
118. Oppenheimer, May 22, 2015
119. Seaport, May 27, 2015
120. Morningstar, May 28, 2015
121. Guggenheim, May 29, 2015
122. Guggenheim (2), May 29, 2015
123. Oppenheimer, May 29, 2015
124. Wells Fargo, May 29, 2015
125. Credit Suisse, June 01, 2015
126. Evercore, June 01, 2015
127. Guggenheim, June 03, 2015
128. Capital One, June 04, 2015
129. Capital One (2), June 04, 2015
130. Scotia Bank, June 04, 2015
131. Simmons, June 04, 2015
132. Simmons (2), June 04, 2015
133. Wells Fargo, June 04, 2015
134. JPMorgan, June 05, 2015
135. Oppenheimer, June 05, 2015
136. Raymond James, June 05, 2015
137. RBC, June 05, 2015
138. Scotia Bank, June 05, 2015
139. Simmons, June 05, 2015
140. RBC, June 08, 2015
141. Oppenheimer, June 12, 2015
142. Cowen, June 17, 2015
143. Cowen (2), June 17, 2015
144. Guggenheim, June 17, 2015
145. Imperial Capital, June 17, 2015
146. Simmons, June 18, 2015
147. Oppenheimer, June 19, 2015
148. Morningstar, June 25, 2015
149. BoA, June 26, 2015
150. Oppenheimer, June 26, 2015
151. Argus, June 29, 2015
152. RBC, June 29, 2015

- 153. Oppenheimer, July 02, 2015
- 154. RBC, July 06, 2015
- 155. Capital One, July 07, 2015
- 156. Guggenheim, July 07, 2015
- 157. Morningstar, July 07, 2015
- 158. Simmons, July 07, 2015
- 159. Cowen, July 08, 2015
- 160. Argus, July 14, 2015
- 161. Guggenheim, July 14, 2015
- 162. Evercore, July 15, 2015
- 163. Oppenheimer, July 17, 2015
- 164. Simmons, July 20, 2015
- 165. GHS, July 21, 2015
- 166. Seaport, July 21, 2015
- 167. Oppenheimer, July 24, 2015
- 168. RBC, July 24, 2015
- 169. Barclays, July 27, 2015
- 170. Evercore, July 27, 2015
- 171. Barclays, July 28, 2015
- 172. Bernstein, July 28, 2015
- 173. BMO, July 28, 2015
- 174. BoA, July 28, 2015
- 175. Cowen, July 28, 2015
- 176. Evercore, July 28, 2015
- 177. Guggenheim, July 28, 2015
- 178. Morgan Stanley, July 28, 2015
- 179. Piper Sandler, July 28, 2015
- 180. RBC, July 28, 2015
- 181. RBC (2), July 28, 2015
- 182. Simmons, July 28, 2015
- 183. Wells Fargo, July 28, 2015
- 184. Atlantic, July 29, 2015
- 185. Capital One, July 29, 2015
- 186. Capital One (2), July 29, 2015
- 187. CFRA Equity, July 29, 2015
- 188. Deutsche Bank, July 29, 2015
- 189. GMP, July 29, 2015
- 190. Goldman Sachs, July 29, 2015
- 191. Johnson Rice, July 29, 2015
- 192. Morningstar, July 29, 2015
- 193. Oppenheimer, July 29, 2015
- 194. Raymond James, July 29, 2015
- 195. RBC, July 29, 2015

196. RBC (2), July 29, 2015
197. Scotia Bank, July 29, 2015
198. Seaport, July 29, 2015
199. Societe Generale, July 29, 2015
200. UBS, July 29, 2015
201. Wells Fargo, July 29, 2015
202. Wolfe, July 29, 2015
203. Capital One, July 30, 2015
204. Credit Suisse, July 30, 2015
205. KLR Group, July 30, 2015
206. Barclays, July 31, 2015
207. Simmons, July 31, 2015
208. Morningstar, August 03, 2015
209. Evercore, August 04, 2015
210. Imperial Capital, August 04, 2015
211. Evercore, August 10, 2015
212. Argus, August 11, 2015
213. Seaport, August 13, 2015
214. Oppenheimer, August 14, 2015
215. Barclays, August 17, 2015
216. Imperial Capital, August 17, 2015
217. Oppenheimer, August 17, 2015
218. Societe Generale, August 17, 2015
219. Morningstar, August 21, 2015
220. Oppenheimer, August 21, 2015
221. Imperial Capital, August 24, 2015
222. Morningstar, September 02, 2015
223. Oppenheimer, September 04, 2015
224. UBS, September 07, 2015
225. Barclays, September 09, 2015
226. Evercore, September 10, 2015
227. Jefferies, September 11, 2015
228. Oppenheimer, September 11, 2015
229. Morningstar, September 12, 2015
230. Cowen, September 15, 2015
231. Seaport, September 15, 2015
232. Capital One, September 16, 2015
233. Morningstar, September 18, 2015
234. Oppenheimer, September 18, 2015
235. Evercore, September 20, 2015
236. Cowen, September 22, 2015
237. Morningstar, September 22, 2015
238. Morningstar, September 24, 2015

239. Morningstar, September 25, 2015
240. Oppenheimer, September 25, 2015
241. UBS, September 25, 2015
242. Seaport, September 29, 2015
243. Guggenheim, October 02, 2015
244. Imperial Capital, October 02, 2015
245. Oppenheimer, October 02, 2015
246. Evercore, October 04, 2015
247. Evercore, October 12, 2015
248. Cowen, October 13, 2015
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250. Oppenheimer, October 16, 2015
251. Evercore, October 19, 2015
252. Seaport Global, October 19, 2015
253. Cowen, October 21, 2015
254. Jefferies, October 21, 2015
255. Credit Suisse, October 22, 2015
256. RBC, October 23, 2015
257. Evercore, October 26, 2015
258. RBC, October 26, 2015
259. Barclays, October 27, 2015
260. BMO, October 27, 2015
261. BMO (2), October 27, 2015
262. BoA, October 27, 2015
263. Cowen, October 27, 2015
264. Evercore, October 27, 2015
265. Guggenheim, October 27, 2015
266. Johnson Rice, October 27, 2015
267. Macquarie, October 27, 2015
268. RBC, October 27, 2015
269. Simmons, October 27, 2015
270. Wells Fargo, October 27, 2015
271. Atlantic, October 28, 2015
272. Capital One, October 28, 2015
273. Capital One (2), October 28, 2015
274. Capital One (3), October 28, 2015
275. CFRA Equity, October 28, 2015
276. Deutsche Bank, October 28, 2015
277. Goldman Sachs, October 28, 2015
278. Johnson Rice, October 28, 2015
279. KLR Group, October 28, 2015
280. Morgan Stanley, October 28, 2015
281. Morningstar, October 28, 2015

282. RBC, October 28, 2015
283. RBC (2), October 28, 2015
284. Scotiabank, October 28, 2015
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286. Simmons, October 28, 2015
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288. UBS, October 28, 2015
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290. Capital One, October 29, 2015
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292. Oppenheimer, October 29, 2015
293. Raymond James, October 29, 2015
294. Wells Fargo, October 29, 2015
295. Barclays, October 30, 2015
296. Jefferies, October 30, 2015
297. Simmons, October 30, 2015
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299. Evercore, November 02, 2015
300. Guggenheim, November 02, 2015
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303. Evercore, November 09, 2015
304. Oppenheimer, November 09, 2015
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306. Bernstein, November 10, 2015
307. Guggenheim, November 10, 2015
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310. Jefferies, November 11, 2015
311. Oppenheimer, November 11, 2015
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319. Oppenheimer, November 20, 2015
320. Argus, November 25, 2015
321. Acquisdata, November 27, 2015
322. Evercore, November 28, 2015
323. Capital One, December 01, 2015
324. MUFG, December 01, 2015

325. Simmons, December 01, 2015
326. Societe Generale, December 01, 2015
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328. Capital One, December 03, 2015
329. RBC, December 03, 2015
330. RBC (2), December 03, 2015
331. RBC (3), December 03, 2015
332. Scotia Bank, December 03, 2015
333. Simmons, December 03, 2015
334. Societe Generale, December 03, 2015
335. Oppenheimer, December 04, 2015
336. Evercore, December 06, 2015
337. MUFG, December 06, 2015
338. Evercore, December 07, 2015
339. Barclays, December 08, 2015
340. MUFG, December 08, 2015
341. JPMorgan, December 09, 2015
342. Evercore, December 13, 2015
343. Oppenheimer, December 13, 2015
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345. Deutsche Bank, December 15, 2015
346. Barclays, December 17, 2015
347. Capital One, December 17, 2015
348. Goldman Sachs, December 17, 2015
349. Guggenheim, December 17, 2015
350. Johnson Rice, December 17, 2015
351. Morningstar, December 17, 2015
352. RBC, December 17, 2015
353. Simmons, December 17, 2015
354. Wells Fargo, December 17, 2015
355. Wells Fargo (2), December 17, 2015
356. BoA, December 18, 2015
357. Capital One, December 18, 2015
358. Deutsche Bank, December 18, 2015
359. Oppenheimer, December 18, 2015
360. Evercore, December 20, 2015
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362. Simmons, December 21, 2015
363. RBC, December 22, 2015
364. MUFG, December 29, 2015
365. Cowen, December 31, 2015
366. Evercore, January 04, 2016
367. Oppenheimer, January 08, 2016

368. Societe Generale, January 11, 2016
369. Jefferies, January 12, 2016
370. Morningstar, January 12, 2016
371. UBS, January 12, 2016
372. Seaport, January 13, 2016
373. Morningstar, January 15, 2016
374. Morningstar (2), January 15, 2016
375. Oppenheimer, January 15, 2016
376. Societe Generale, January 15, 2016
377. Evercore, January 21, 2016
378. Morningstar, January 22, 2016
379. Oppenheimer, January 22, 2016
380. Credit Suisse, January 26, 2016
381. Atlantic, January 27, 2016
382. Evercore, January 27, 2016
383. Johnson Rice, January 29, 2016
384. MUFG, January 29, 2016
385. Oppenheimer, January 29, 2016
386. Evercore, January 31, 2016
387. Barclays, February 01, 2016
388. Barclays (2), February 01, 2016
389. BMO, February 01, 2016
390. BoA, February 01, 2016
391. Cowen, February 01, 2016
392. Cowen (2), February 01, 2016
393. Deutsche Bank, February 01, 2016
394. Evercore, February 01, 2016
395. Guggenheim, February 01, 2016
396. Jefferies, February 01, 2016
397. Jefferies (2), February 01, 2016
398. Johnson Rice, February 01, 2016
399. JPMorgan, February 01, 2016
400. RBC, February 01, 2016
401. RBC (2), February 01, 2016
402. RBC (3), February 01, 2016
403. Simmons, February 01, 2016
404. UBS, February 01, 2016
405. ValuEngine, February 01, 2016
406. Wells Fargo, February 01, 2016
407. Atlantic, February 02, 2016
408. Capital One, February 02, 2016
409. CFRA Equity, February 02, 2016
410. Goldman Sachs, February 02, 2016

411. Guggenheim, February 02, 2016
412. Johnson Rice, February 02, 2016
413. Macquarie, February 02, 2016
414. Morgan Stanley, February 02, 2016
415. MUFG, February 02, 2016
416. Raymond James, February 02, 2016
417. RBC, February 02, 2016
418. Scotiabank, February 02, 2016
419. Seaport, February 02, 2016
420. Simmons, February 02, 2016
421. Simmons (2), February 02, 2016
422. Societe Generale, February 02, 2016
423. UBS, February 02, 2016
424. UBS (2), February 02, 2016
425. Wells Fargo, February 02, 2016
426. Wells Fargo (2), February 02, 2016
427. Wolfe, February 02, 2016
428. Barclays, February 03, 2016
429. BMO Capital Markets, February 03, 2016
430. BoA, February 03, 2016
431. CFRA Equity, February 03, 2016
432. Credit Suisse, February 03, 2016
433. Morningstar, February 03, 2016
434. Simmons, February 03, 2016
435. Morningstar, February 05, 2016
436. Morningstar (2), February 05, 2016
437. Evercore, February 07, 2016
438. Aquisdata, February 08, 2016
439. Societe Generale, February 08, 2016
440. Barclays, February 09, 2016
441. Deutsche Bank, February 09, 2016
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443. MUFG, February 09, 2016
444. RBC, February 09, 2016
445. Simmons, February 09, 2016
446. BoA, February 10, 2016
447. Capital One, February 10, 2016
448. Deutsche Bank, February 10, 2016
449. Morningstar, February 10, 2016
450. Simmons, February 10, 2016
451. UBS, February 10, 2016
452. Wells Fargo, February 10, 2016
453. Morningstar, February 11, 2016

454. Argus, February 22, 2016
455. Guggenheim, February 22, 2016
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458. Barclays, February 24, 2016
459. Deutsche Bank, February 24, 2016
460. Jefferies, February 24, 2016
461. Morgan Stanley, February 24, 2016
462. RBC, February 24, 2016
463. Wolfe, February 24, 2016
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465. BoA, February 25, 2016
466. Capital One, February 25, 2016
467. Deutsche Bank, February 25, 2016
468. MUFG, February 25, 2016
469. Piper Sandler, February 25, 2016
470. RBC, February 25, 2016
471. Simmons, February 25, 2016
472. RBC, February 28, 2016
473. Barclays, March 01, 2016
474. Barclays (2), March 01, 2016
475. BoA, March 01, 2016
476. Capital One, March 01, 2016
477. Cowen, March 01, 2016
478. Cowen (2), March 01, 2016
479. Deutsche Bank, March 01, 2016
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485. Simmons, March 01, 2016
486. Societe Generale, March 01, 2016
487. UBS, March 01, 2016
488. Wells Fargo, March 01, 2016
489. Wells Fargo (2), March 01, 2016
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491. Jefferies, March 02, 2016
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493. Macquarie, March 02, 2016
494. Morningstar, March 02, 2016
495. Morningstar (2), March 02, 2016
496. MUFG, March 02, 2016

497. RBC, March 02, 2016
498. Scotiabank, March 02, 2016
499. Wolfe, March 02, 2016
500. BMO Capital Markets, March 03, 2016
501. Morningstar, March 03, 2016
502. Deutsche Bank, March 04, 2016
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507. Guggenheim, March 14, 2016
508. BoA, March 15, 2016
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511. Societe Generale, March 22, 2016
512. Bernstein, March 22, 2016
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514. Cowen, March 23, 2016
515. Morningstar, March 24, 2016
516. Seaport, March 30, 2016
517. JP Morgan, April 02, 2016
518. Morningstar, April 06, 2016
519. Morningstar, April 07, 2016
520. Morningstar (2), April 07, 2016
521. Morningstar, April 08, 2016
522. Morningstar, April 09, 2016
523. Piper Sandler, April 11, 2016
524. Simmons, April 11, 2016
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528. Argus, April 15, 2016
529. JPMorgan, April 15, 2016
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532. Jefferies, April 20, 2016
533. MUFG, April 20, 2016
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535. JPMorgan, April 21, 2016
536. Wells Fargo, April 22, 2016
537. RBC, April 29, 2016
538. Barclays, May 02, 2016
539. Barclays (2), May 02, 2016

540. BMO Capital Markets, May 02, 2016
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544. Johnson Rice, May 02, 2016
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546. Morgan Stanley, May 02, 2016
547. MUFG, May 02, 2016
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549. RBC, May 02, 2016
550. Seaport Global, May 02, 2016
551. Simmons, May 02, 2016
552. UBS, May 02, 2016
553. Wells Fargo, May 02, 2016
554. Atlantic, May 03, 2016
555. Barclays, May 03, 2016
556. BoA, May 03, 2016
557. Capital One, May 03, 2016
558. Capital One (2), May 03, 2016
559. CFRA Equity, May 03, 2016
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561. Deutsche Bank, May 03, 2016
562. Goldman Sachs, May 03, 2016
563. Johnson Rice, May 03, 2016
564. KLR Group, May 03, 2016
565. Macquarie, May 03, 2016
566. Morgan Stanley, May 03, 2016
567. Morningstar, May 03, 2016
568. MUFG, May 03, 2016
569. Societe Generale, May 03, 2016
570. Wells Fargo, May 03, 2016
571. Wolfe, May 03, 2016
572. Atlantic, May 04, 2016
573. Bernstein, May 04, 2016
574. BMO Capital Markets, May 04, 2016
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576. Credit Suisse (2), May 04, 2016
577. Goldman Sachs, May 04, 2016
578. JPMorgan, May 04, 2016
579. Morningstar, May 04, 2016
580. Raymond James, May 04, 2016
581. Scotia Bank, May 04, 2016
582. Goldman Sachs, May 05, 2016

583. RBC, May 06, 2016
584. Evercore, May 08, 2016
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586. Morningstar, May 11, 2016
587. Piper Sandler, May 12, 2016
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593. Piper Sandler, May 19, 2016
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595. Credit Suisse, May 20, 2016
596. Argus, May 24, 2016
597. Guggenheim, May 24, 2016
598. UBS, May 24, 2016
599. Credit Suisse, May 25, 2016
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601. Seaport Global, June 07, 2016
602. Piper Sandler, June 09, 2016
603. Simmons, June 09, 2016
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605. Capital One, June 14, 2016
606. MUFG, June 14, 2016
607. Evercore, June 19, 2016
608. Evercore, June 20, 2016
609. BoA, June 21, 2016
610. CFRA Equity, June 21, 2016
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615. Piper Sandler, June 30, 2016
616. Simmons, June 30, 2016
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618. JPMorgan, July 12, 2016
619. Piper Sandler, July 14, 2016
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624. Capital One, July 21, 2016
625. JPMorgan, July 21, 2016

626. RBC, July 21, 2016
627. Guggenheim, July 24, 2016
628. Evercore, July 25, 2016
629. Seaport, July 25, 2016
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638. Guggenheim, July 26, 2016
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645. Simmons, July 26, 2016
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654. KLR Group, July 27, 2016
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656. Morgan Stanley, July 27, 2016
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658. Societe Generale, July 27, 2016
659. UBS, July 27, 2016
660. Wells Fargo, July 27, 2016
661. Wells Fargo (2), July 27, 2016
662. Credit Suisse, July 28, 2016
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664. Simmons, July 28, 2016
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667. JPMorgan, July 29, 2016
668. Evercore, July 31, 2016

669. Morningstar, August 01, 2016
670. MUFG, August 01, 2016
671. Argus, August 03, 2016
672. Evercore, August 07, 2016
673. Acquisdata, August 10, 2016
674. Guggenheim, August 10, 2016
675. RBC, August 10, 2016
676. RBC, August 11, 2016
677. Jefferies, August 15, 2016
678. Guggenheim, August 17, 2016
679. Macquarie, August 23, 2016
680. RBC, August 23, 2016
681. Morningstar, August 24, 2016
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683. Morningstar, August 26, 2016
684. Morningstar, August 29, 2016
685. Societe Generale, August 29, 2016
686. Seaport, August 30, 2016
687. Seaport, September 07, 2016
688. Cowen, September 08, 2016
689. Piper Sandler, September 08, 2016
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693. Barclays (2), September 12, 2016
694. Credit Suisse, September 12, 2016
695. Credit Suisse (2), September 12, 2016
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703. Capital One (2), September 13, 2016
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711. Morgan Stanley, September 13, 2016

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713. Piper Sandler, September 13, 2016
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716. Scotia Bank, September 13, 2016
717. Seaport, September 13, 2016
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723. JPMorgan, September 15, 2016
724. Wells Fargo, September 15, 2016
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727. Simmons, September 16, 2016
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732. Argus, September 28, 2016
733. Morningstar, September 28, 2016
734. Morningstar, September 29, 2016
735. Goldman Sachs, September 30, 2016
736. Guggenheim, September 30, 2016
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738. RBC, October 05, 2016
739. BMO, October 06, 2016
740. Cowen, October 06, 2016
741. JPMorgan, October 06, 2016
742. Piper Sandler, October 06, 2016
743. Scotia Bank, October 06, 2016
744. Societe Generale, October 07, 2016
745. Morgan Stanley, October 11, 2016
746. Deutsche Bank, October 13, 2016
747. Capital One, October 14, 2016
748. Evercore, October 14, 2016
749. MUFG, October 14, 2016
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752. Nomura, October 26, 2016
753. Barclays, October 27, 2016
754. Deutsche Bank, October 27, 2016

755. Guggenheim, October 27, 2016
756. RBC, October 27, 2016
757. Capital One, October 28, 2016
758. RBC, October 28, 2016
759. Barclays, October 31, 2016
760. Barclays (2), October 31, 2016
761. BMO, October 31, 2016
762. BoA, October 31, 2016
763. Cowen, October 31, 2016
764. Credit Suisse, October 31, 2016
765. Deutsche Bank, October 31, 2016
766. Evercore, October 31, 2016
767. Goldman Sachs, October 31, 2016
768. Guggenheim, October 31, 2016
769. Johnson Rice, October 31, 2016
770. JPMorgan, October 31, 2016
771. Piper Sandler, October 31, 2016
772. Raymond James, October 31, 2016
773. RBC, October 31, 2016
774. Simmons, October 31, 2016
775. UBS, October 31, 2016
776. Atlantic, November 01, 2016
777. Capital One, November 01, 2016
778. CFRA Equity, November 01, 2016
779. Deutsche Bank, November 01, 2016
780. Goldman, November 01, 2016
781. Johnson Rice, November 01, 2016
782. KLR Group, November 01, 2016
783. Macquarie, November 01, 2016
784. Morgan Stanley, November 01, 2016
785. MUFG, November 01, 2016
786. Raymond James, November 01, 2016
787. RBC, November 01, 2016
788. Seaport, November 01, 2016
789. Societe Generale, November 01, 2016
790. Barclays, November 02, 2016
791. Credit Suisse, November 02, 2016
792. Credit Suisse (2), November 02, 2016
793. Morningstar, November 02, 2016
794. Wells Fargo, November 02, 2016
795. Wolfe, November 02, 2016
796. Piper Sandler, November 04, 2016
797. Simmons, November 04, 2016

798. Capital One, November 09, 2016
799. BMO, November 11, 2016
800. Guggenheim, November 11, 2016
801. Morningstar, November 11, 2016
802. Societe Generale, November 15, 2016
803. Argus, November 18, 2016
804. JPMorgan, November 23, 2016
805. RBC, November 30, 2016
806. Evercore, December 01, 2016
807. Morningstar, December 01, 2016
808. UBS, December 02, 2016
809. Seaport Global, December 09, 2016
810. Morningstar, December 13, 2016
811. Morningstar (2), December 13, 2016
812. Morningstar (3), December 13, 2016
813. BoA, December 15, 2016
814. Cowen, December 15, 2016
815. JPMorgan, December 15, 2016
816. Piper Sandler, December 15, 2016
817. RBC, December 15, 2016
818. Simmons, December 15, 2016
819. UBS, December 15, 2016
820. Capital One, December 16, 2016
821. Deutsche Bank, December 16, 2016
822. Johnson Rice, December 16, 2016
823. Morgan Stanley, December 16, 2016
824. RBC, December 16, 2016
825. Scotia, December 16, 2016
826. Seaport Global, December 16, 2016
827. CFRA Equity, December 19, 2016
828. Ladenburg Thalmann, December 19, 2016
829. Macquarie, December 19, 2016
830. Barclays, December 21, 2016
831. BMO, December 21, 2016
832. BoA, December 21, 2016
833. Deutsche Bank, December 21, 2016
834. Evercore, December 21, 2016
835. Johnson Rice, December 21, 2016
836. RBC, December 21, 2016
837. RBC (2), December 21, 2016
838. UBS, December 21, 2016
839. Barclays, December 22, 2016
840. Capital One, December 22, 2016

841. Deutsche Bank, December 22, 2016
842. Global Hunter, December 22, 2016
843. Guggenheim, December 22, 2016
844. Ladenburg Thalmann, December 22, 2016
845. Macquarie, December 22, 2016
846. Morgan Stanley, December 22, 2016
847. RBC, December 22, 2016
848. Scotia, December 22, 2016
849. Seaport, December 22, 2016
850. Wells Fargo, December 22, 2016
851. Wolfe, January 01, 2017
852. JPMorgan, January 03, 2017
853. Raymond James, January 03, 2017
854. Cowen, January 06, 2017
855. Evercore, January 06, 2017
856. BMO, January 11, 2017
857. Societe Generale, January 11, 2017
858. Barclays, January 12, 2017
859. Barclays (2), January 12, 2017
860. BoA, January 12, 2017
861. Cowen, January 12, 2017
862. Piper Sandler, January 12, 2017
863. RBC, January 12, 2017
864. UBS, January 12, 2017
865. Wolfe, January 12, 2017
866. BMO, January 13, 2017
867. Capital One, January 13, 2017
868. CFRA, January 13, 2017
869. Evercore, January 13, 2017
870. Evercore (2), January 13, 2017
871. Guggenheim, January 13, 2017
872. Johnson Rice, January 13, 2017
873. JPMorgan, January 13, 2017
874. Ladenburg, January 13, 2017
875. Ladenburg (2), January 13, 2017
876. Morgan Stanley, January 13, 2017
877. Raymond James, January 13, 2017
878. RBC, January 13, 2017
879. RBC (2), January 13, 2017
880. RBC (3), January 13, 2017
881. Scotia, January 13, 2017
882. Seaport, January 13, 2017
883. Societe Generale, January 13, 2017

884. Macquarie, January 17, 2017
885. MUFG, January 19, 2017
886. MUFG (2), January 19, 2017
887. Nomura, January 19, 2017
888. Barclays, January 23, 2017
889. Credit Suisse, January 24, 2017
890. Cowen, January 25, 2017
891. Barclays, January 26, 2017
892. Morgan Stanley, January 26, 2017
893. Evercore, January 27, 2017
894. Evercore, January 28, 2017
895. RBC, January 29, 2017
896. Johnson Rice, January 30, 2017
897. Barclays, January 31, 2017
898. Barclays (2), January 31, 2017
899. BMO, January 31, 2017
900. Cowen, January 31, 2017
901. Credit Suisse, January 31, 2017
902. Deutsche Bank, January 31, 2017
903. Goldman Sachs, January 31, 2017
904. Guggenheim, January 31, 2017
905. Johnson Rice, January 31, 2017
906. JP Morgan (2), January 31, 2017
907. JPMorgan, January 31, 2017
908. Piper Sandler, January 31, 2017
909. Raymond James, January 31, 2017
910. RBC, January 31, 2017
911. Simmons, January 31, 2017
912. Wells Fargo, January 31, 2017
913. Atlantic, February 01, 2017
914. BoA, February 01, 2017
915. Capital One, February 01, 2017
916. CFRA, February 01, 2017
917. Cowen, February 01, 2017
918. Credit Suisse, February 01, 2017
919. Deutsche Bank, February 01, 2017
920. Evercore, February 01, 2017
921. Goldman Sachs, February 01, 2017
922. KLR Group, February 01, 2017
923. Ladenburg, February 01, 2017
924. Ladenburg (2), February 01, 2017
925. Morgan Stanley, February 01, 2017
926. MUFG, February 01, 2017

927. Piper Sandler, February 01, 2017
928. Piper Sandler (2), February 01, 2017
929. Raymond James, February 01, 2017
930. RBC, February 01, 2017
931. Scotia, February 01, 2017
932. Seaport, February 01, 2017
933. Simmons, February 01, 2017
934. Simmons (2), February 01, 2017
935. Societe Generale, February 01, 2017
936. UBS, February 01, 2017
937. Wolfe, February 01, 2017
938. Barclays, February 02, 2017
939. BMO Capital Markets, February 02, 2017
940. Johnson Rice, February 02, 2017
941. Ladenburg, February 02, 2017
942. Morningstar, February 02, 2017
943. RBC, February 02, 2017
944. CFRA Equity, February 03, 2017
945. Goldman Sachs, February 05, 2017
946. Morningstar, February 06, 2017
947. Wells Fargo, February 06, 2017
948. Acquisdata, February 07, 2017
949. Ladenburg, February 07, 2017
950. Bernstein, February 08, 2017
951. Morningstar, February 11, 2017
952. Evercore, February 13, 2017
953. Argus, February 17, 2017
954. Evercore, February 17, 2017
955. Wells Fargo, February 21, 2017
956. Morningstar, February 22, 2017
957. Validea, February 24, 2017
958. Credit Suisse, February 26, 2017
959. UBS, March 01, 2017
960. Barclays, March 02, 2017
961. Cowen, March 02, 2017
962. Evercore, March 02, 2017
963. JPMorgan, March 02, 2017
964. Cowen, March 03, 2017
965. Morgan Stanley, March 03, 2017
966. RBC, March 03, 2017
967. BoA, March 05, 2017
968. UBS, March 05, 2017
969. Cowen, March 06, 2017

970. Deutsche Bank, March 06, 2017
971. Raymond James, March 06, 2017
972. Barclays, March 07, 2017
973. Barclays (2), March 07, 2017
974. BoA, March 07, 2017
975. Cowen, March 07, 2017
976. Credit Suisse, March 07, 2017
977. Goldman Sachs, March 07, 2017
978. Johnson Rice, March 07, 2017
979. JPMorgan, March 07, 2017
980. Piper Sandler, March 07, 2017
981. RBC, March 07, 2017
982. Seaport, March 07, 2017
983. Wells Fargo, March 07, 2017
984. BMO, March 08, 2017
985. Credit Suisse, March 08, 2017
986. Deutsche Bank, March 08, 2017
987. Evercore, March 08, 2017
988. Evercore (2), March 08, 2017
989. Goldman Sachs, March 08, 2017
990. Guggenheim, March 08, 2017
991. Ladenburg, March 08, 2017
992. Macquarie, March 08, 2017
993. Morgan Stanley, March 08, 2017
994. Scotia, March 08, 2017
995. Societe Generale, March 08, 2017
996. Wells Fargo, March 08, 2017
997. Barclays, March 09, 2017
998. Credit Suisse, March 09, 2017
999. Deutsche Bank, March 09, 2017
1000. KLR Group, March 09, 2017
1001. Ladenburg Thalmann, March 09, 2017
1002. MUFG, March 09, 2017
1003. Raymond James, March 09, 2017
1004. UBS, March 09, 2017
1005. Evercore, March 10, 2017
1006. Scotiabank, March 10, 2017
1007. BMO Capital Markets, March 13, 2017
1008. BoA, March 13, 2017
1009. Cowen, March 13, 2017
1010. Cowen (2), March 13, 2017
1011. Wolfe, March 13, 2017
1012. Guggenheim, March 16, 2017

1013. RBC, March 16, 2017
1014. Barclays, March 17, 2017
1015. RBC, March 17, 2017
1016. Macquarie, March 20, 2017
1017. Argus, March 24, 2017
1018. Goldman Sachs, March 24, 2017
1019. Macquarie, March 27, 2017
1020. Scotiabank, March 27, 2017
1021. Morningstar, March 28, 2017
1022. Morningstar, March 29, 2017
1023. Capital One, March 30, 2017
1024. Cowen, March 30, 2017
1025. Credit Suisse, March 30, 2017
1026. Seaport Global, March 31, 2017
1027. BMO Capital Markets, April 03, 2017
1028. Seaport Global, April 18, 2017
1029. Societe Generale, April 26, 2017
1030. Capital One, April 27, 2017
1031. Evercore, April 27, 2017
1032. JPMorgan, April 27, 2017
1033. Morgan Stanley, April 27, 2017
1034. Wells Fargo, April 27, 2017
1035. Cowen, April 30, 2017
1036. RBC, May 01, 2017
1037. Aquisdata, May 02, 2017
1038. Barclays, May 02, 2017
1039. Barclays (2), May 02, 2017
1040. Bernstein, May 02, 2017
1041. BMO, May 02, 2017
1042. BoA, May 02, 2017
1043. Cowen, May 02, 2017
1044. Credit Suisse, May 02, 2017
1045. Johnson Rice, May 02, 2017
1046. JPMorgan, May 02, 2017
1047. Raymond James, May 02, 2017
1048. RBC, May 02, 2017
1049. RBC (2), May 02, 2017
1050. Atlantic Equities, May 03, 2017
1051. Capital One, May 03, 2017
1052. CFRA, May 03, 2017
1053. Credit Suisse, May 03, 2017
1054. Deutsche Bank, May 03, 2017
1055. Evercore, May 03, 2017

- 1056. Goldman Sachs, May 03, 2017
- 1057. Guggenheim, May 03, 2017
- 1058. Ladenburg, May 03, 2017
- 1059. Macquarie, May 03, 2017
- 1060. Morgan Stanley, May 03, 2017
- 1061. Raymond James, May 03, 2017
- 1062. Scotia, May 03, 2017
- 1063. Societe Generale, May 03, 2017
- 1064. UBS, May 03, 2017
- 1065. Wolfe, May 03, 2017
- 1066. Barclays, May 04, 2017
- 1067. CFRA Equity, May 04, 2017
- 1068. KLR Group, May 04, 2017
- 1069. Ladenburg, May 04, 2017
- 1070. MUFG, May 04, 2017
- 1071. Wells Fargo, May 05, 2017

All other documents and sources cited in the report and appendices.

Appendix C

Analysis of Market Efficiency Factors Based On the Factors/Methodology Steinholt Applied to Anadarko

Steinholt Factor	Factor	Anadarko	ConocoPhillips	Cobalt	Noble Energy	Extraction Oil and Gas	PDC Energy	SRC Energy
Trading on NYSE/NASDAQ	[1]	Trades on NYSE	Trades on NYSE	Trades on NYSE	Trades on NASDAQ	Trades on NASDAQ	Trades on NASDAQ	Trades on NYSE
Average Weekly Trading Volume	[2]	5%	4%	6%	5%	4%	13%	10%
Analyst Coverage	[3]	Over 600 analyst reports and over 5,000 news articles on Bloomberg.	Over 700 analyst reports and over 10,000 news articles on Bloomberg.	Over 200 analyst reports and over 600 news articles on Bloomberg.	Over 900 analyst reports and over 4,000 news articles on Bloomberg.	64 analyst reports and over 1,200 news articles on Bloomberg.	Over 500 analyst reports and over 2,100 news articles on Bloomberg.	Over 400 analyst reports and over 2,100 news articles on Bloomberg.
Liquidity Providers and Institutional Investors	[4]	(1) 150 liquidity providers with 41 with volume of at least 1 million shares and (2) Institutions owned at least 86% of shares and more than 1,800 institutional investors owned more than 440 million shares.	(1) 180 liquidity providers with 43 with volume of at least 1 million shares and (2) Institutions owned at least 65% of shares and more than 2,500 institutional investors owned more than 800 million shares.	(1) 130 liquidity providers with 28 with volume of at least 1 million shares and (2) Institutions owned at least 95% of shares and more than 500 institutions owned more than 28 million shares.	(1) 160 liquidity providers with 30 with volume of at least 1 million shares and (2) Institutions owned at least 94% of shares and more than 1,100 institutional investors owned more than 366 million shares.	(1) 110 liquidity providers with 13 with volume of at least 1 million shares and (2) Institutions owned at least 71% of shares and more than 170 institutional investors owned more than 120 million shares.	(1) 160 liquidity providers with 29 with volume of at least 1 million shares and (2) Institutions owned at least 107% of shares and more than 600 institutions owned more than 45 million shares.	(1) 75 liquidity providers with 6 with volume of at least 1 million shares and (2) Institutions owned at least 77% of shares and more than 400 institutions owned more than 80 million shares.
Eligibility to file S-3	[5]	(1) SEC reporting company for at least 12 months; (2) Had \$75 million in voting stock held by non-affiliates; (3) Filed S-3 on August 12, 2016.	(1) SEC reporting company for at least 12 months; (2) Had \$75 million in voting stock held by non-affiliates; (3) Filed S-3 on May 13, 2015.	(1) SEC reporting company for at least 12 months; (2) Had \$75 million in voting stock held by non-affiliates; (3) Filed S-3 on December 22, 2016.	(1) SEC reporting company for at least 12 months; (2) Had \$75 million in voting stock held by non-affiliates; (3) Filed S-3 on February 17, 2016.	(1) Not an SEC reporting company for at least 12 months; (2) Had \$75 million in voting stock held by non-affiliates; (3) Did not file Form S-3 during purported Class Period.	(1) SEC reporting company for at least 12 months; (2) Had \$75 million in voting stock held by non-affiliates; (3) Filed S-3 on March 18, 2015.	(1) SEC reporting company for at least 12 months; (2) Had \$75 million in voting stock held by non-affiliates; (3) Filed S-3 on September 11, 2015.
Market, Industry, and Company-Specific Information Incorporated Into Stock Price	[6]	(1) One-factor regression of market index over purported Class Period shows market index is statistically significant at 5% level; (2) One-factor regression of industry index over purported Class Period shows industry index is statistically significant at 5% level; (3) 5 out of 9 financial release dates are statistically significant at the 5% level.	(1) One-factor regression of market index over purported Class Period shows market index is statistically significant at 5% level; (2) One-factor regression of industry index over purported Class Period shows industry index is statistically significant at 5% level; (3) 3 out of 9 financial release dates are statistically significant at the 5% level.	(1) One-factor regression of market index over purported Class Period shows market index is statistically significant at 5% level; (2) One-factor regression of industry index over purported Class Period shows industry index is statistically significant at 5% level; (3) 4 out of 9 financial release dates are statistically significant at the 5% level.	(1) One-factor regression of market index over purported Class Period shows market index is statistically significant at 5% level; (2) One-factor regression of industry index over purported Class Period shows industry index is statistically significant at 5% level; (3) 5 out of 9 financial release dates are statistically significant at the 5% level.	(1) One-factor regression of market index over purported Class Period shows market index is statistically significant at 5% level; (2) One-factor regression of industry index over purported Class Period shows industry index is statistically significant at 5% level; (3) 1 out of 2 financial release dates are statistically significant at the 5% level.	(1) One-factor regression of market index over purported Class Period shows market index is statistically significant at 5% level; (2) One-factor regression of industry index over purported Class Period shows industry index is statistically significant at 5% level; (3) 4 out of 8 financial release dates are statistically significant at the 5% level.	(1) One-factor regression of market index over purported Class Period shows market index is statistically significant at 5% level; (2) One-factor regression of industry index over purported Class Period shows industry index is statistically significant at 5% level; (3) 4 out of 8 financial release dates are statistically significant at the 5% level.
Market Capitalization	[7]	\$15 billion to \$50 billion.	\$39 billion to \$85 billion.	\$167 million to \$4.6 billion.	\$11 billion to \$21 billion.	\$2.6 billion to \$3.5 billion.	\$1.6 billion to \$4.6 billion.	\$607 million to \$2 billion.
Bid-Ask Spread	[8]	\$0.02 per share or 0.02% of closing price.	\$0.01 per share or 0.02% of closing price.	\$0.13 per share or 0.34% of closing price.	\$0.01 per share or 0.03% of closing price.	N/A	\$0.02 per share or 0.04% of closing price.	\$0.01 per share or 0.13% of closing price.
Float	[9]	500 million shares.	1.2 billion shares.	23 million shares.	355 million shares.	N/A	35 million shares.	83 million shares.

Analysis of Market Efficiency Factors Based On the Factors/Methodology Steinholt Applied to Anadarko

Notes and sources:

The above analysis is based on data from February 20, 2015 through May 2, 2017, except for Extraction Oil & Gas which starts on October 11, 2016 (i.e., the date of its initial public offering). See "Extraction Oil & Gas, Inc. Prices Initial Public Offering," Extraction Oil & Gas, Inc. Press Release, October 11, 2016.

[1] Exchange listing per company Form 10-Ks filed from February 20, 2015 to May 2, 2017 with the SEC.

[2] Steinholt Report, ¶ 25. Per Steinholt Report (Exhibit 1), average weekly share turnover is calculated from average daily share turnover from February 20, 2017 through May 2, 2017 multiplied by five. Volume data per C2021CRSP®, Center for Research in Security Prices, Booth School of Business, The University of Chicago. Used with permission. All rights reserved. www.crsp.chicagobooth.edu; Bloomberg L.P.

[3] Steinholt Report, ¶ 28. Number of analyst reports per S&P Capital IQ. Number of news articles per Bloomberg function CN.

[4] Steinholt Report, ¶¶ 32-33. Number of liquidity providers per Bloomberg function BAS. Institutional holdings data from March 31, 2015 to March 31, 2017 per Thomson Financial.

[5] Steinholt Report, ¶ 35. Each company's Form S-3 filing date per SEC EDGAR database. Extraction Oil & Gas completed its IPO in October, 2016 and filed its S-3 on May 14, 2018. See "Extraction Oil & Gas, Inc. Prices Initial Public Offering," Extraction Oil & Gas, Inc. Press Release, October 11, 2016; Extraction Oil & Gas, Inc., Form S-3, May 14, 2018.

[6] Steinholt Report, ¶¶ 39-41. Company, S&P 500 Index, and industry index returns per C2021CRSP®, Center for Research in Security Prices, Booth School of Business, The University of Chicago. Used with permission. All rights reserved. www.crsp.chicagobooth.edu. Description of the industry indices and financial release dates per Ferrell Report Appendix D. For the "financial release" dates, Mr. Steinholt finds that the cumulative probability of finding at least 5 out of 9 dates being statistically significant at the 5% level using a binomial distribution is 1 in more than 30,000, which exceeds his benchmark of 1 out of 20. Steinholt Report, ¶ 41 and note 55. Using Mr. Steinholt's methodology, the cumulative probability is 1 out of 120 for ConocoPhillips, 1 out of 1,556 for Cobalt, 1 out of 30,100 for Noble, 1 out of 10 for Extraction Oil & Gas, and 1 out of 2,690 for both PDC Energy and SRC Energy.

[7] Steinholt Report, ¶ 47. Market capitalization data per C2021CRSP®, Center for Research in Security Prices, Booth School of Business, The University of Chicago. Used with permission. All rights reserved. www.crsp.chicagobooth.edu; Bloomberg

[8] Steinholt Report, ¶ 49. Bid-ask spread data per Bloomberg L.P.

[9] Steinholt Report, ¶ 51. Float data per Bloomberg L.P.

Appendix D

Description of Regression Models

1. I describe the event study methodology and report the results of my event study for Anadarko, ConocoPhillips, Cobalt, Noble Energy, PDC Energy, SRC Energy, and Extraction Oil & Gas in the text of my report. In this appendix, I describe the regression model and estimation period I use for each of these firms.

A. Regression Model for Anadarko, ConocoPhillips, and Cobalt

2. Mr. Steinholt uses a two-factor regression model of Anadarko's returns with the S&P 500 Index as the market index and an equal-weighted index of Anadarko's peers as the industry index.¹ To minimize potential issues that may arise in the choice of regression model and estimation period, I apply Mr. Steinholt's methodology to Anadarko, ConocoPhillips, and Cobalt with one change. In deposition testimony, Mr. Steinholt appears to suggest that if his analysis took into account the alleged fraud he would have not included ConocoPhillips in his peer group. Accordingly, while I also use the S&P 500 Index as the market index for all three of my regression models, I modify Mr. Steinholt's Peer Group by removing ConocoPhillips to exclude the potential effect of the alleged fraud on the peer group returns.² In particular, I constructed an equal-weighted portfolio consisting of the returns of Apache Corporation, Chesapeake Energy Corporation, Chevron Corporation, Devon Energy Corporation, EOG Resources, Inc., Hess Corporation, Marathon Oil Corporation, Noble Energy, Inc., Occidental Petroleum Corporation, and Pioneer Natural Resources Company (i.e., "Modified Steinholt Peer Group").³ I use the Modified Steinholt Peer Group as my industry index for all three regression models. The results of my event study are qualitatively similar and, therefore, the conclusions I draw are the same regardless of whether ConocoPhillips is included or excluded from the industry index.⁴

¹ Steinholt Report, ¶ 37.

² Steinholt Dep. Tr. 15:2-8 & 25:17-22.

³ Mr. Steinholt lists the members of his peer group in Steinholt Report Exhibit D, note 2.

⁴ As explained below, I also removed Noble from the Steinholt Peer Group when performing an event study on the companies that operate in Colorado (i.e., "Modified Steinholt Peer Group Excluding Noble"). The results of my event study on May 2, 3, 5, and 8, 2017 for Anadarko, ConocoPhillips, and Cobalt using that Modified Steinholt Peer Group Excluding Noble are qualitatively similar to the results

3. Following Mr. Steinholt's methodology for the estimation period, I use 252 trading days prior to each event date after the exclusion of the company's "financial release" dates (i.e., the estimation period always has 252 observations). For Anadarko, I excluded the same "financial release" dates as Mr. Steinholt. Specifically, I excluded the following dates: May 6, 2014, July 30, 2014, October 29, 2014, February 3, 2015, May 5, 2015, July 29, 2015, October 28, 2015, February 2, 2016, May 3, 2016, July 27, 2016, November 1, 2016, February 1, 2017, and May 3, 2017. For ConocoPhillips, I excluded the following "financial release" dates: May 1, 2014, July 31, 2014, October 30, 2014, January 29, 2015, April 30, 2015, July 30, 2015, October 29, 2015, February 4, 2016, April 28, 2016, July 28, 2016, October 27, 2016, February 2, 2017, and May 2, 2017. For Cobalt, I excluded the following "financial release" dates: February 27, 2014, May 1, 2014, August 5, 2014, November 4, 2014, February 23, 2015, May 5, 2015, August 4, 2015, November 3, 2015, February 22, 2016, May 3, 2016, August 2, 2016, November 1, 2016, and March 14, 2017.

B. Regression Models for Noble Energy, PDC Energy, SRC Energy, and Extraction Oil & Gas

4. Similar to the above, I apply Mr. Steinholt's methodology to Noble Energy, PDC Energy, SRC Energy, and Extraction Oil & Gas but made some changes. In deposition testimony, Mr. Steinholt appears to suggest that if his analysis took into account the alleged fraud he would have not included ConocoPhillips in his peer group.⁵ Also in his deposition, Mr. Steinholt identified Noble Energy as one of the companies that was impacted by the news about the fire and explosion in Firestone, Colorado.⁶ Accordingly, while I also use the S&P 500 Index as the market index for all of my regression models, I modify Mr. Steinholt's Peer Group by removing both ConocoPhillips and Noble to exclude the potential effects of the alleged fraud and news of the fire and explosion in Firestone, Colorado on the peer group returns. In particular, I constructed an equal-weighted portfolio consisting of the returns of Apache Corporation, Chesapeake Energy Corporation, Chevron Corporation, Devon Energy Corporation, EOG Resources, Inc., Hess Corporation, Marathon Oil Corporation, Occidental Petroleum

of using the Modified Steinholt Peer Group and, therefore, the conclusions I draw are the same regardless of whether I exclude Noble from the Modified Steinholt Peer Group or not.

⁵ Steinholt Dep. Tr. 15:2-8 & 25:17-22.

⁶ Steinholt Dep. Tr. 28:8-10.

Corporation, and Pioneer Natural Resources Company as the “Modified Steinholt Peer Group Excluding Noble”.⁷ I use the Modified Steinholt Peer Group Excluding Noble as my industry index for all four regression models. The results of my event study are qualitatively similar and, therefore, the conclusions I draw are the same whether or not one excludes ConocoPhillips and Noble from the industry index.

5. Following Mr. Steinholt’s methodology for the estimation period, I use 252 trading days prior to May 3, 2017 after the exclusion of the company’s “financial release” dates (i.e., the estimation period always has 252 observations) for Noble Energy, PDC Energy, and SRC Energy. Because it completed its IPO on October 12, 2016, I used an estimation period from October 13, 2016 to May 2, 2017 for Extraction Oil & Gas. Then, I excluded the respective “financial release” dates of each firm from the estimation period. For Noble Energy, I excluded the following “financial release” dates: April 24, 2014, July 24, 2014, October 28, 2014, February 19, 2015, May 5, 2015, August 3, 2015, November 2, 2015, February 17, 2016, May 4, 2016, August 3, 2016, November 2, 2016, February 14, 2017, and May 2, 2017. For PDC Energy, I excluded the following “financial release” dates: February 20, 2014, May 6, 2014, August 8, 2014, November 6, 2014, February 19, 2015, May 7, 2015, August 10, 2015, November 5, 2015, February 22, 2016, May 6, 2016, August 9, 2016, November 3, 2016, and February 28, 2017. For SRC Energy, I excluded the following “financial release” dates: April 4, 2014, July 9, 2014, October 28, 2014, January 9, 2015, April 9, 2015, July 9, 2015, October 16, 2015, January 8, 2016, May 4, 2016, August 5, 2016, November 4, 2016, and February 24, 2017. For Extraction Oil & Gas, I excluded the following “financial release” dates: November 8, 2016 and March 14, 2017.

⁷ Mr. Steinholt lists the members of his peer group in Steinholt Report Exhibit D. note 2